1422d

THE NAUTICAL ALMANAC AND ASTRONOMICAL EPHEMERIS,

FOR THE YEAR 1781.

Publiſhed by ORDER of the

COMMISSIONERS OF LONGITUDE.

MVSEVM
BRITAN
NICVM

LONDON

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M DCC LXXIX.
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EXTRACT from the Act of Parliament concerning the Longitude, made in the Fifth Year of the Reign of his preſent Majeſty.

WHEREAS the Publication of Nautical Almanacs conſtructed by proper Perſons, under the Direction of the ſaid Commiſſioners, would greatly contribute to make the ſaid Lunar Tables more generally uſeful; Be it further Enacted, by the Authority aforeſaid, That it ſhall and may be lawful to and for the ſaid Commiſſioners to cauſe ſuch Nautical Almanacs, or other uſeful Tables, to be conſtructed, and to print, publiſh, and vend, or cauſe to be printed, publiſhed, and vended, any Nautical Almanac or Almanacs, or other uſeful Table or Tables, which they, or the major Part of them, ſhall, from time to time, judge neceſſary and uſeful, in order to facilitate the Method of diſcovering the Longitude at Sea; any Law, Statute, excluſive Privilege, private Charter, or other Cuſtom, to the contrary thereof notwithſtanding.

And be it Enacted, by the Authority aforeſaid, That no Perſon or Perſons ſhall print, publiſh, or vend, or cauſe to be printed, publiſhed, or vended, any Nautical Almanac or Almanacs, or other Table or Tables conſtructed under the Direction of the ſaid Commiſſioners, without being firſt licenſed by the ſaid Commiſſioners, or the major Part of them: And if any Perſon or Perſons not ſo licenſed, or not being authorized by the Perſon or Perſons ſo licenſed by the ſaid Commiſſioners, ſhall print, publiſh, or vend, or cauſe to be printed, publiſhed, or vended, any ſuch Nautical Almanac or Almanacs, or other Table or Tables, every ſuch Perſon or Perſons ſhall, for every Copy of ſuch Nautical Almanac or Table ſo printed, publiſhed, or vended, forfeit and pay the Sum of Twenty Pounds; to be recovered by Action of Debt, Bill, Plaint, or Information, in any of his Majeſty's Courts of Record at *Weſtminſter*; and that One Moiety of ſuch Penalty and Forfeiture ſhall be to his Majeſty, his Heirs and Succeſſors, and the other Moiety to him or them that ſhall proſecute, inform, or ſue for the ſame.

EXTRACT of an Act for the Repeal of all former Acts concerning the Longitude at Sea, except ſo much thereof as relates to the Appointment and Authority of the Commiſſioners thereby conſtituted, and alſo ſuch Clauſes as relate to the conſtructing, printing, publiſhing, vending, and licenſing of Nautical Almanacs and other uſeful Tables; and for the more effectual Encouragement and Reward of ſuch Perſon and Perſons as ſhall diſcover a Method for finding the ſame, or ſhall make uſeful Diſcoveries in Navigation; and for the better making Experiments relating thereto: Made in the Fourteenth Year of the Reign of his preſent Majeſty.

BE it Enacted by the KING's Moſt Excellent Majeſty, by and with the Advice and Conſent of the Lords Spiritual and Temporal, and Commons, in this preſent Parliament aſſembled, and by the Authority of the ſame, That each and every of the ſaid recited Acts (ſave and except ſuch Clauſe and Clauſes in each or any of them as relate to the Appointment or Authority of all or any of the Commiſſioners thereby reſpectively conſtituted, and alſo ſuch Clauſe and Clauſes as relate to the conſtructing, printing, publiſhing, vending, and licenſing of Nautical Almanacs, and other uſeful Tables) ſhall, from and after the Twenty-fourth Day of *June* One thouſand Seven hundred and Seventy-four, be, and are hereby repealed.

And, for a due and ſufficient Encouragement to any Perſon or Perſons who ſhall diſcover any Method or Methods for finding the ſaid Longitude, Be it Enacted by the Authority aforeſaid, That the Firſt Author or Authors, Diſcoverer or Diſcoverers, of each and every ſuch Method or Methods, his or their Executors, Adminiſtrators, or Aſſigns, ſhall be intitled to and have the Rewards or Sums of Money herein-after mentioned; that is to ſay, In caſe the Method propoſed ſhall be, by means of a Time-keeper, the Principles whereof have not hitherto been made public, to the Reward or Sum of Five thouſand

Pounds, if ſuch Method determines the ſaid Longitude to One Degree of a great Circle, or Sixty geographical Miles; to the Reward or Sum of Seven thouſand Five hundred Pounds, if it determines the ſame to Two Thirds of that Diſtance; and to the Reward or Sum of Ten thouſand Pounds, if it determines the ſame to One Half of the ſaid Diſtance: Which reſpective Rewards ſhall be due and paid when ſuch Method ſhall have been ſufficiently tried by the following Experiments and Voyages to be made and performed by ſuch Perſons, and under ſuch Reſtrictions, as the ſaid Commiſſioners for the Diſcovery of Longitude at Sea reſpectively conſtituted by the above-recited Acts, or the major Part of them, ſhall think fit to appoint and direct; (that is to ſay), When and ſo ſoon as Two or more Time-keepers of the ſame Conſtruction ſhall have been tried at the ſame Time, for the Space of Twelve Months, at the Royal Obſervatory at *Greenwich*, then in Two Voyages round the Iſland of *Great Britain*, in contrary Directions, and in ſuch other Voyages to different Climates as the ſaid Commiſſioners ſhall think fit to direct and appoint; and after their Return from ſuch Voyages, or any of them, for ſuch longer Time, at the ſaid Obſervatory, not exceeding Twelve Months, as the ſaid Commiſſioners ſhall judge neceſſary; and alſo when and ſo ſoon as the ſaid Commiſſioners, or Two Thirds of them at the leaſt, ſhall, after ſuch Experiments and Voyages have been made and performed as aforeſaid, have declared and determined that ſuch Method is generally practicable and uſeful, and ſufficiently exact to determine the Longitude at Sea within the Degrees or Limits aforeſaid, in all Voyages for the Space of Six Months, (Impediments from cloudy and hazy Weather excepted); and alſo when and ſo ſoon as the Principles and Practice of ſuch Method are fully diſcovered and explained to the Satisfaction of the ſaid Commiſſioners, or Two Thirds of them at leaſt; and ſuch Author or Authors, Diſcoverer or Diſcoverers, ſhall have delivered up and aſſigned over to the ſaid Commiſſioners, for the Uſe of the Public, the abſolute Property of ſuch Time-keepers as ſhall have been tried by ſuch Experiments and Voyages as aforeſaid, together with all Plates, Deſcriptions, Theories, and Explanations belonging or relating to the ſame, and which ſhall contain the Whole of ſuch Diſcovery of the Longitude; and in caſe the Method propoſed ſhall be by means of improved Solar and Lunar Tables, then and in ſuch Caſe the Author or Authors of ſuch improved Solar and Lunar Tables, their Executors, Adminiſtrators, or Aſſigns, ſhall be intitled to and have the Reward or Sum of Five thouſand Pounds, if ſuch Solar and Lunar Tables ſhall prove ſufficiently exact to ſhew the Diſtance of the Moon from the Sun and Stars in the Heavens within Fifteen Seconds of a Degree, anſwering to about Seven Minutes of Longitude, after making an Allowance of Half a Degree for the Errors of Obſervation; and when it ſhall appear to the Satisfaction of the ſaid Commiſſioners, or Two Thirds of them at leaſt, that ſuch Tables are conſtructed intirely upon the Principles of Gravitation laid down by Sir *Iſaac Newton* (except with reſpect to thoſe Elements which muſt neceſſarily be taken from aſtronomical Obſervations), and alſo when the Truth of ſuch Tables ſhall have been further confirmed and proved by Compariſon with a Series of aſtronomical Obſervations made during a Period of Eighteen Years and a Half, which is deemed the Period of the Irregularities of the Lunar Motions; which Reward ſhall be due and paid, when the ſaid Commiſſioners, or Two Thirds of them at leaſt, ſhall have declared and determined, that ſuch Tables are ſufficiently exact to ſhew the Diſtance of the Moon from the Sun and Stars in the Heavens, within the Limits above-mentioned; and alſo when the Author or Authors of ſuch improved Solar and Lunar Tables, his or their Executors, Adminiſtrators, or Aſſigns, ſhall have delivered up and aſſigned over to the ſaid Commiſſioners, for the Uſe of the Public, the abſolute Right and Property to and in the ſame, together with the Theory relating thereunto; and in caſe any other Method ſhall be propoſed for finding the Longitude at Sea beſides thoſe before-mentioned, that then and in ſuch Caſe the Firſt Author or Authors, Diſcoverer or Diſcoverers, of any ſuch Method, his or their Executors, Adminiſtrators, or Aſſigns, ſhall be intitled to and have the Reward or Sum of Five thouſand Pounds, if it ſhall determine the ſaid Longitude within One Degree of a great Circle or Sixty geographical Miles; to the Reward or Sum of Seven thouſand Five hundred Pounds, if it ſhall determine the ſame to Two Thirds of that Diſtance; and to the Reward or Sum of Ten thouſand Pounds, if it ſhall determine the ſame to One Half of the ſame Diſtance; which reſpective Rewards ſhall be due and paid, ſo ſoon as the ſaid Commiſſioners, or Two Thirds of them at leaſt, ſhall, after proper Trial have been made by their Appointment and Direction, have determined that ſuch Method ſhall be generally practicable and uſeful for finding the Longitude at Sea within the reſpective Limits above-mentioned.

And be it further Enacted, by the Authority aforeſaid, That when and ſo ſoon as any ſuch Method or Methods, for the Diſcovery of the ſaid Longitude, ſhall be tried, as before-mentioned, and found practicable and uſeful at Sea, and ſufficiently exact to determine the Longitude within any of the Degrees or Limits aforeſaid, the ſaid Commiſſioners, or Two Thirds of them, ſhall certify the ſame, under their Hands and Seals, to the Commiſſioners of the Navy for the Time being, together with the Name or Names of the Perſon or Perſons who ſhall be the Author or Authors of ſuch Method or Methods; and upon the Receipt of ſuch Certificate, the ſaid Commiſſioners of the Navy are hereby authorized and required to make out a Bill or Bills upon the Treaſurer of the Navy for the reſpective Sum or Sums of Money to which the Author or Authors of ſuch Propoſal, his or their Executors, Adminiſtrators, or Aſſigns, ſhall be intitled by virtue of this Act; which Sum or Sums the ſaid Treaſurer is hereby required to pay to the ſaid Author or Authors, their Executors, Adminiſtrators, or Aſſigns accordingly, out of any Money that may be in his Hands unapplied to the Uſe of the Navy, according to the true Intent and Meaning of this Act.

EXTRACT, &c.

And be it further Enacted, by the Authority aforeſaid, That the ſaid Commiſſioners for the Diſcovery of Longitude at Sea, or any Five or more of them, ſhall have full Power and Authority to hear and receive any Propoſal or Propoſals that ſhall be made to them for diſcovering the ſaid Longitude, or for making any other uſeful Improvement in Navigation; and in caſe the ſaid Commiſſioners, or any Five or more of them, ſhall be ſo far ſatisfied of the Probability of any ſuch Diſcovery or Improvement as to think it proper to cauſe Experiments to be made thereof, they ſhall certify the ſame, together with the Names of the Author or Authors of ſuch Propoſal or Propoſals, under their Hands and Seals, to the Commiſſioners of the Navy, who are hereby authorized and required to make out a Bill or Bills upon the Treaſurer of the Navy for any Sum or Sums of Money as the ſaid Commiſſioners for the Diſcovery of Longitude at Sea, or any Five or more of them, ſhall think neceſſary for making ſuch Experiments; which Sum or Sums the Treaſurer of the Navy is hereby required to pay immediately to ſuch Perſon or Perſons as ſhall be appointed by the ſaid Commiſſioners to make thoſe Experiments out of any Money which ſhall be in his the ſaid Treaſurer's Hands unapplied as aforeſaid.

And be it further Enacted, by the Authority aforeſaid, That if any Perſon or Perſons ſhall make any Diſcovery for finding the Longitude at Sea, which, though not of ſo great Uſe as to be intitled to any of the great Rewards above ſpecified, ſhall nevertheleſs be adjudged by the ſaid Commiſſioners for the Diſcovery of Longitude at Sea, or the major Part of them, to be of conſiderable Uſe to the Public, or ſhall make any other Diſcovery or Diſcoveries, Improvement or Improvements, uſeful to Navigation; then, and in ſuch Caſe, ſuch Perſon or Perſons, his or their Executors, Adminiſtrators, or Aſſigns, ſhall, from time to time, have and receive ſuch leſs Reward or Sum or Sums of Money as the ſaid Commiſſioners, or the major Part of them, ſhall think reaſonable; and certify accordingly, under their Hands and Seals, to the Commiſſioners of the

Navy,

Navy, who are hereby authorized and required to make out a Bill or Bills upon the Treaſurer of the Navy for any ſuch Sum or Sums of Money, which the ſaid Treaſurer is hereby authorized and required to pay immediately to ſuch Perſon or Perſons, his or their Executors, Adminiſtrators, or Aſſigns, out of any Money that ſhall be in his the ſaid Treaſurer's Hands unapplied as aforeſaid.

Provided alſo, and it is hereby further Enacted, That in caſe any Perſon or Perſons who ſhall and may have received any Sum or Sums of Money, by virtue of this Act, as a Reward for any Method of diſcovering the Longitude at Sea, ſhall afterwards become intitled to any of the greater Rewards appointed by this Act, for or on account of the ſame Method; that then, and in ſuch Caſe, ſuch Sum or Sums of Money as they ſhall or may have received as aforeſaid ſhall be conſidered as Part of ſuch greater Reward, and deducted therefrom accordingly; and that no Perſon ſhall receive more in the Whole for any One Method for diſcovering the Longitude at Sea than the greateſt Reward appointed for ſuch Method by this Act.

By the COMMISSIONERS appointed by Acts of Parliament for the Diſcovery of the Longitude at Sea; and for examining, trying, and judging of all Propoſals, Experiments, and Improvements relating to the ſame.

WHEREAS we have employed proper Perſons to compute Nautical Almanacs and Aſtronomical Ephemerides for the Years 1781, 1782, 1783. 1784, 1785, and 1786, which will greatly contribute to make the Lunar Tables conſtructed by the late Profeſſor MAYER of *Gottingen* (which you have already printed with our Authority) more generally uſeful; and whereas we think fit to employ you to print the ſaid Nautical Almanacs and Aſtronomical Ephemerides: We do therefore, in purſuance of the Power veſted in us by Act of Parliament, hereby licenſe, authorize, and impower you to cauſe the ſame to be printed, together with ſuch other uſeful Tables for facilitating the Method of diſcovering the Longitude at Sea, as ſhall have been conſtructed under our Direction, and will be delivered to you by the Reverend Dr. NEVIL MASKELYNE, his Majeſty's Aſtronomer Royal at *Greenwich*; and for ſo doing this ſhall be your ſufficient Warrant. Given under our Hands and Seals the 6th Day of *March* 1779.

SANDWICH (L.S.)
FL. NORTON (L.S.)
T. FRANKLAND (L.S.)
C. HARDY (L.S.)
T. PYE (L.S.)
G. B. RODNEY (L.S.)
JOS BANKS (L.S.)
N. MASKELYNE (L.S.)
T. HORNSBY (L.S.)
J. SMITH (L.S.)
E. WARING (L.S.)
A. SHEPHERD (L.S.)
J. MARRIOTT (L.S.)
GREY COOPER (L.S.)
J. ROBINSON (L.S.)
P. STEPHENS (L.S.)
J. SMITH (L.S.)

To Mr. WILLIAM
RICHARDSON,
Printer in *Saliſbury*
court, Fleet-ſtreet.

By Command of the Commiſſioners,

JOHN IBBETSON, Secretary.

By the Commissioners appointed by Acts of Parliament for the Diſcovery of the Longitude at Sea; and for examining, trying, and judging of all Propoſals, Experiments, and Improvements relating to the ſame.

WHEREAS we think fit to employ you to publiſh and vend, and to cauſe to be publiſhed and vended, the Nautical Almanacs and Aſtronomical Ephemerides for the Years 1781, 1782, 1783, 1784, 1785, and 1786, together with other uſeful Tables (conſtructed under our Direction) for facilitating the Method of diſcovering the Longitude at Sea, which will be printed by Mr. William Richardson of *Saliſbury-court, Fleet-ſtreet:* We do therefore, in purſuance of the Power veſted in us by Act of Parliament, hereby licenſe, authorize, and impower you to publiſh and vend, and to cauſe to be publiſhed and vended, the ſaid Nautical Almanacs and Aſtronomical Ephemerides, together with other uſeful Tables abovementioned. For which this ſhall be your ſufficient Warrant. Given under our Hands and Seals this 6th Day of *March* 1779.

Sandwich (L.S.)
Fl. Norton (L.S.)
T. Frankland (L.S.)
C. Hardy (L.S.)
T. Pye (L.S.)
G. B. Rodney (L.S.)
Jos. Banks (L.S.)
N. Maskelyne (L.S.)
T. Hornsby (L.S.)
J. Smith (L.S.)
E. Waring (L.S.)
A. Shepherd (L.S.)
J. Marriott (L.S.)
Grey Cooper (L.S.)
J. Robinson (L.S.)
Ph. Stephens (L.S.)
J. Smith (L.S.)

To Mr. John Nourse,
Bookſeller in the *Strand.*

By Command of the Commiſſioners,
John Ibbetson, Secretary.

☞ A Licence was alſo granted at the ſame Time, to the like Effect, to Meſſ. John Mount and Thomas Page, Stationers on *Tower-hill.*

PREFACE.

THE Commiſſioners of Longitude, in purſuance of the Powers veſted in them by Act of Parliament, preſent the Public with the NAUTICAL ALMANAC and ASTRONOMICAL EPHEMERIS for the Year 1781, being the Fifteenth Impreſſion, to be continued annually; a Work which muſt greatly contribute to the Improvement of Aſtronomy, Geography, and Navigation. This EPHEMERIS contains every Thing eſſential to general Uſe that is to be found in any Ephemeris hitherto publiſhed, with many other uſeful and intereſting Particulars never yet offered to the Public in any Work of this Kind. The Tables of the Moon had been brought by the late Profeſſor MAYER of Gottingen to a ſufficient Exactneſs to determine the Longitude at Sea, within a Degree, as appeared by the Trials of ſeveral Perſons who made Uſe of them. The Difficulty and Length of the neceſſary Calculations ſeemed the only Obſtacles to hinder them from becoming of general Uſe: To remove which this EPHEMERIS was made; the Mariner being hereby relieved from the Neceſſity of calculating the Moon's Place from the Tables, and afterwards computing the Diſtance to Seconds by Logarithms, which are the principal and only very delicate Part of the Calculus; ſo that the finding the Longitude by the Help of the EPHEMERIS is now in a Manner reduced to the Computation of the Time, an Operation equal to that of an Azimuth, and the Correction of the Diſtance on account of Refraction and Parallax, which is alſo rendered very eaſy by either of the Two Methods invented by Mr. LYONS and Mr. DUNTHORNE, and publiſhed among the Tables requiſite to be uſed with the EPHEMERIS; or by either of the Two Methods annexed to the EPHEMERIS of 1772, being both Improvements of the Method which I formerly publiſhed in the BRITISH MARINER'S GUIDE and PHILOSOPHICAL TRANSACTIONS, the Firſt by myſelf, and the Second by Mr. GEORGE WITCHELL; but ſtill more ſo by the GENERAL TABLES for correcting the apparent Diſtance of the Moon and a Star or the Sun from the Effects of Refraction and Parallax, computed at great Expence by Order of the Commiſſioners of Longitude, and publiſhed under the Care of Dr. SHEPHERD, Plumian Profeſſor of Aſtronomy and experimental Philoſophy at CAMBRIDGE, in 1772.

By Deſire of the Commiſſioners of Longitude, I drew up the Explanation and Uſe of the Articles contained in the EPHEMERIS, and the Inſtructions, with Examples, for finding the Longitude at Sea by the Help of the ſame. I alſo collected and calculated the Sixteen Firſt Pages of Tables requiſite to be uſed with the EPHEMERIS, and computed the Table of proportional Logarithms, which ſeemed to me abſolutely neceſſary to clear this Method of any remaining Difficulty; and added Explanations of all the Tables, and a Correction, p. 49 and 50, which may be applied by the Curious to the Effect of Refraction on the Moon's Diſtance from a Star, found by Mr. LYONS, or any other Method, on account of the Barometer and Thermometer.

PREFACE.

All the Calculations of the EPHEMERIS relating to the Sun were made from Mr. MAYER's laſt manuſcript Tables, received by the Board of Longitude after his Deceaſe, which have been printed under my Inſpection, and publiſhed in 1770; but the Calculations of the Moon were made in this EPHEMERIS, for the fifth time, from new Tables, improved from MAYER's Tables, compoſed by Mr. CHARLES MASON, under my Direction, from Calculations made by Order of the Board of Longitude, upon the Series of lunar Obſervations made by the late Dr. BRADLEY, and publiſhed in the Nautical Almanac of 1774. In theſe new Tables, the Epoch of the Moon's mean Longitude is 1″ leſs, that of the Apogee is 56″ leſs, and that of the Aſcending Node 45″ more, than in MAYER's printed Tables, and the Equations are calculated to Tenths of a Second. Moreover, One new Equation is introduced, whoſe Argument is the mean Diſtance of the Moon from the Sun's Apogee, and Maximum 16″,4. Theſe new Tables, when compared with the above-mentioned Series of Obſervations, a proper Allowance being made for the unavoidable Error of Obſervation, ſeem to give always the Moon's Longitude in the Heavens correctly within 45 Seconds of a Degree; which greateſt Error, added to a poſſible Error of One Minute in taking the Moon's Diſtance from the Sun or a Star at Sea, will at a Medium only produce an Error of 50 Minutes of Longitude.

The Calculations of the Planets, and of the Eclipſes of Jupiter's Satellites were calculated from the Tables of Mr. WARGENTIN, annexed to M. DE LA LANDE's Aſtronomy, excepting the

Eclipſes

Eclipſes of Jupiter's Second Satellite, which were inſerted in this EPHEMERIS for the firſt time from new Tables tranſmitted to me from their learned Author Mr. WARGENTIN, Secretary to the Royal Academy of Sciences at STOCKHOLM, and publiſhed at the End of the Nautical Almanac of 1779.

All the Articles of the EPHEMERIS were computed by Two ſeparate Perſons, and examined by a Third, except the Moon's Longitude, Latitude, Right Aſcenſion, Declination, Semidiameter, and Parallax, which, for Noon, were computed by One Perſon, and for Midnight by another, and the Truth of theſe Calculations aſcertained by means of Differences, which, for the Moon's Longitude, were carried as far as the Fourth Order.

To this EPHEMERIS are annexed, A Set of Aſtronomical Problems uſeful at Sea, by the Rev'd JOHN EDWARDS.

NEVIL MASKELYNE,
ASTRONOMER ROYAL.

GREENWICH,
March 10th,
1779.

EXPLANATION of the Characters uſed in the EPHEMERIS.

The PLANETS, &c.

☉ The Sun.
☾ The Moon.
☿ Mercury.
♀ Venus.
♂ Mars.
♃ Jupiter
♄ Saturn.
☊ The Moon's, or any other Planet's Aſcending Node.
☋ The Deſcending Node.
☌ Conjunction, or Planets ſituated in the ſame Longitude.
☍ Oppoſition, or Planets ſituated in oppoſite Longitudes, or differing 6 Signs from each other.

Signs of the Zodiac.

S.		S.	
0.	♈ Aries.	6.	♎ Libra.
1.	♉ Taurus.	7.	♏ Scorpio.
2.	♊ Gemini.	8.	♐ Sagittarius.
3.	♋ Cancer.	9.	♑ Capricornus.
4.	♌ Leo.	10.	♒ Aquarius.
5.	♍ Virgo.	11.	♓ Piſces.

ECLIPSES for the YEAR 1781.

April 23. ☉ eclipſed, partly viſible: H. M.
Begins — — — 6. 37
☉ ſets at — — — 7. 10
☽ makes Firſt Impreſſion on the Solar Diſc at 144°¼ from ☉'s Zenith to the Left Hand.

Oct. 16. ☉ eclipſed, viſible: H. M.
Begins — — — 18. 53
Middle — — — — 19. 37
End — — — — 20. 20
Digits eclipſed 3°. 46′. on the northern Limb of the Sun.

The ☽ firſt touches the ☉ at 61½ Degrees from the ☉'s Zenith towards the Weſt. This Eclipſe is central and total to *New Holland*, Part of the *Indian Ocean*, the interior Parts of *Africa*; and the ☽'s Shadow quits the Earth towards the Iſland of *Madeira* about Sun-riſing.

1781.

OBLIQUITY, &c.

1781.	Obliquity of the Ecliptic. D. M. S.	Equat. of Equin. Points. S.
Jan. 1.	23. 28. 11,0	— 11,7
Apr. 1.	23. 28. 11,4	— 10,6
July 1.	23. 28. 11,7	— 9,3
Oct. 1.	23. 28. 11,9	— 8,0
Dec. 31.	23. 28. 12,1	— 6,5

JANUARY 1781.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	M.	*Circumciſion.*
2	Tu.	
3	W.	
4	Th.	
5	F.	
6	Sa.	*Epiphany.*
7	*Su.*	*1ſt Sunday after Epiphany.*
8	M.	Lucian.
9	Tu.	
10	W.	
11	Th.	
12	F.	
13	Sa.	Hil. Camb. Ter. begins.
14	*Su.*	*2d Sunday after Epiphany.*
15	M.	[Oxford Term begins.
16	Tu.	
17	W.	
18	Th.	*Q. Charlotte's Birth-day*
19	F.	*[kept.*
20	Sa.	Fabian. Hil. 1ſt ret.
21	*Su.*	*3d Su. after Epiph.* Agnes.
22	M.	Vincent.
23	Tu.	Hilary Term begins.
24	W.	
25	Th.	*Converſion of St. Paul.*
26	F.	[2 ret.
27	Sa.	*Pr. Aug. Fred. born.* Hil.
28	*Su.*	*4th Sunday after Epiphany.*
29	M.	
30	Tu.	K. *Charles* I. *martyr.*
31	W.	

Phaſes of the Moon.

	D.	H.	M.
Firſt Quarter—	2.	8.	14
Full Moon —	9.	21.	4
Laſt Quarter —	16.	13.	53
New Moon —	24.	0.	11

Other Phenomena.

D.	
2.	♂ α ♎ diff. Lat. $37'\frac{1}{2}$.
7.	☾ 125 ♉ $20^{h}. 39'$.
9.	♀ ♄ diff. Lat. $2'$.
12.	☾ η ♌ $5^{h}. 27'$.
15.	☾ γ ♍ $3^{h}. 17'$.
15.	☾ θ ♍ Im. $15^{h}. 47'\frac{1}{4}$. * $13'. 47''$. N. of ☽'s cent. Em. $16^{h}. 12'\frac{1}{4}$. * $15'. 55''$. N. of ☽'s center.
17.	☾ λ ♍ $1^{h}. 5'$.
17.	☾ α ♎ $15^{h}. 19'$.
18.	☾ δ ♏ $22^{h}. 21'$.
19.	☉ enters ♒ at $2^{h}. 16'$:
21.	♂ ♃ diff. Lat. $2'$.
21.	☾ φ ♐ $19^{h}. 16'$.
21.	☾ σ ♐ $23^{h}. 24'$.
22.	☾ τ ♐ $4^{h}. 0'$.
23.	♂ κ ♎ diff. Lat. $49'$.
24.	☾ ξ ♑ $23^{h}. 46'$.
27.	♂ λ ♎ diff. Lat. $41'$:
27.	☾ 1 Ψ $3^{h}. 33'$.
27.	☾ 2 Ψ $4^{h}. 25'$.
27.	☾ 3 Ψ $4^{h}. 34'$.
29.	♃ κ ♎ diff. Lat. $3'$.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. South.	Equat. of Time Add.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	M.	9. 11. 34. 17	18. 50. 19,9	22. 57. 55	4.22,9	28,0
2	Tu.	9. 12. 35. 27	18. 54. 44,5	22. 52. 53	4.50,9	27,7
3	W.	9. 13. 36. 40	18. 59. 8,9	22. 46. 23	5.18,6	27,2
4	Th.	9. 14. 37. 50	19. 3. 32,7	22. 39. 57	5.45,8	26,6
5	F.	9. 15. 39. 0	19. 7. 56,0	22. 33. 3	6.12,4	26,2
6	Sa.	9. 16. 40. 9	19. 12. 18,8	22. 25. 43	6.38,6	25,7
7	*Su.*	9. 17. 41. 18	19. 16. 41,1	22. 17. 56	7. 4,3	25,2
8	M.	9. 18. 42. 26	19. 21. 2,9	22. 9. 43	7.29,5	24,6
9	Tu.	9. 19. 43. 34	19. 25. 24,1	22. 1. 5	7.54,1	24,0
10	W.	9. 20. 44. 41	19. 29. 44,8	21. 51. 59	8.18,1	23,5
11	Th.	9. 21. 45. 48	19. 34. 4,9	21. 42. 30	8.41,6	22,8
12	F.	9. 22. 46. 55	19. 38. 24,3	21. 32. 35	9. 4,4	22,3
13	Sa.	9. 23. 48. 1	19. 42. 43,2	21. 22. 13	9.26,7	21,5
14	*Su.*	9. 24. 49. 6	19. 47. 1,3	21. 11. 29	9.48,2	20,8
15	M.	9. 25. 50. 12	19. 51. 18,8	21. 0. 20	10. 9,0	20,2
16	Tu.	9. 26. 51. 17	19. 55. 35,6	20. 48. 47	10.29,2	19,6
17	W.	9. 27. 52. 22	19. 59. 51,8	20. 36. 49	10.48,8	18,8
18	Th.	9. 28. 53. 27	20. 4. 7,2	20. 24. 28	11. 7,6	18,2
19	F.	9. 29. 54. 30	20. 8. 22,0	20. 11. 44	11.25,8	17,3
20	Sa.	10. 0. 55. 34	20. 12. 35,9	19. 58. 38	11.43,1	16,7
21	*Su.*	10. 1. 56. 37	20. 16. 49,2	19. 45. 9	11.59,8	15,9
22	M.	10. 2. 57. 39	20. 21. 1,7	19. 31. 18	12.15,7	15,0
23	Tu.	10. 3. 58. 41	20. 25. 13,3	19. 17. 6	12.30,7	14,3
24	W.	10. 4. 59. 42	20. 29. 24,2	19. 2. 32	12.45,0	13,5
25	Th.	10. 6. 0. 41	20. 33. 34,3	18. 47. 37	12.58,5	12,7
26	F.	10. 7. 1. 40	20. 37. 43,6	18. 32. 22	13.11,2	11,9
27	Sa.	10. 8. 2. 38	20. 41. 52,1	18. 16. 46	13.23,1	11,1
28	*Su.*	10. 9. 3. 35	20. 45. 59,8	18. 0. 51	13.34,2	10,2
29	M.	10. 10. 4. 30	20. 50. 6,5	17. 44. 37	13.44,4	9,3
30	Tu.	10. 11. 5. 23	20. 54. 12,4	17. 28. 4	13.53,7	8,5
31	W.	10. 12. 6. 15	20. 58. 17,5	17. 11. 12	14. 2,2	

JANUARY 1781.

Days of the Month.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 19,2	1. 10,9	2. 32,9	9,992650	1. 10. 40
7	16. 19,1	1. 10,6	2. 32,8	9,992704	1. 10. 21
13	16. 18,8	1. 10,0	2. 32,8	9,992860	1. 10. 2
19	16. 18,2	1. 9,5	2. 32,6	9,993112	1. 9. 43
25	16. 17,5	1. 8,8	2. 32,3	9,993429	1. 9. 24

Eclipſes of the SATELLITES of JUPITER.

I. Satellite. Immerſions.

Days	H. M. S.
*2	17. 54. 37
4	12. 22. 7
6	6. 49. 39
8	1. 17. 11
9	19. 44. 47
11	14. 12. 22
13	8. 40. 3
15	3. 7. 42
16	21. 35. 24
*18	16. 3. 9
20	10. 30. 56
22	4. 58. 45
23	23. 26. 36
*25	17. 54. 30
27	12. 22. 27
29	6. 50. 27
31	1. 18. 29

II. Satellite.

Days	H. M. S.	
1	7. 37. 58	I
4	20. 53. 50	I
8	10. 9. 4	I
11	23. 25. 42	I
15	12. 41. 4	I
19	1. 57. 57	I
19	4. 14. 31	E
*22	15. 14. 12	I
*22	17. 30. 50	E
26	4. 30. 35	I
26	6. 47. 16	E
29	17. 47. 5	I
29	20. 3. 48	E

III. Satellite.

Days	H. M. S.	
7	8. 45. 8	I
7	10. 17. 38	E
14	12. 39. 45	I
14	14. 12. 21	E
*21	16. 34. 54	I
*21	18. 7. 37	E
28	20. 30. 44	I
28	22. 3. 35	E

IV. Satellite.		Conj.
*4	17. 36	Sup
13	4. 16	Inf.
21	12. 48	Sup.
29	23. 18	Inf.

JANUARY 1781.

Days	Heliocentric Longitude. S. D. M.	Heliocentric Latitude. D. M.	Geocentric Longitude. S. D. M.	Geocentric Latitude. D. M.	Declination. D. M.	Paſſage over Merid. H. M.
MERCURY.						
1	5. 29. 5	5. 6N	8. 18. 38	2. 2N	20. 56 S	22. 21
4	6. 10. 22	4. 4	8. 21. 36	1. 36	21. 36	22. 20
7	6. 20. 47	2. 58	8. 24. 57	1. 9	22. 13	22. 22
10	7. 0. 31	1. 51	8. 28. 40	0. 42	22. 45	22. 25
13	7. 9. 43	0. 44 N	9. 2. 35	0. 17 N	23. 10	22. 30
16	7. 18. 30	0. 20 S	9. 6. 41	0. 7 S	23. 25	22. 35
9	7. 27. 1	1. 22	9. 10. 56	0. 30	23. 31	22. 41
22	8. 5. 20	2. 21	9. 15. 18	0. 51	23. 26	22. 47
25	8. 13. 35	3. 17	9. 19. 47	1. 9	23. 9	22. 54
28	8. 21. 50	4. 8	9. 24. 22	1. 26	22. 41	23. 2
31	9. 0. 11	4. 55	9. 29. 4	1. 40	22. 2	23. 10
VENUS.						
1	6. 10. 2	3. 4N	8. 4. 50	1. 50N	19. 19 S	21. 23
7	6. 19. 43	2. 47	8. 12. 10	1. 37	20. 40	21. 27
3	6. 29. 22	2. 25	8. 19. 31	1. 22	21. 41	21. 33
9	7. 8. 59	1. 59	8. 26. 53	1. 6	22. 20	21. 39
5	7. 18. 35	1. 30	9. 4. 17	0. 48	22. 35	21. 46
MARS.						
1	6. 9. 41	1. 8N	7. 11. 16	0. 59N	14. 17 S	19. 45
7	6. 12. 26	1. 4	7. 14. 57	0. 57	15. 26	19. 33
3	6. 15. 11	1. 0	7. 18. 37	0. 55	16. 31	19. 22
9	6. 17. 57	0. 55	7. 22. 16	0. 52	17. 31	19. 11
5	6. 20. 45	0. 51	7. 25. 54	0. 49	18. 27	19. 0
JUPITER.						
1	7. 12. 27	1. 6N	7. 20. 34	1. 0N	16. 57 S	20. 20
7	7. 12. 55	1. 6	7. 21. 36	1. 0	17. 13	19. 58
3	7. 13. 23	1. 5	7. 22. 33	1. 1	17. 27	19. 36
19	7. 13. 51	1. 5	7. 23. 26	1. 1	17. 40	19. 14
25	7. 14. 18	1. 4	7. 24. 15	1. 2	17. 51	18. 52
SATURN.						
1	8. 12. 3	1. 36N	8. 14. 36	1. 28N	21. 7 S	22. 0
7	8. 12. 13	1. 36	8. 15. 15	1. 28	21. 10	21. 36
3	8. 12. 24	1. 35	8. 15. 52	1. 29	21. 14	21. 13
9	8. 12. 35	1. 35	8. 16. 27	1. 29	21. 17	20. 50
5	8. 12. 46	1. 35	8. 17. 1	1. 29	21. 21	20. 27

JANUARY 1781.

Days of the Month.	Days of the Week.	Moon's Longitude at Noon. S. D. M. S.	Moon's Longitude at Midnight. S. D. M. S.	Moon's Latitude at Noon. D. M. S.	Moon's Latitude at Midn. D. M. S.
1	M.	11. 27. 2. 22	0. 2. 56. 57	3. 35. 2	3. 11. 32 S
2	Tu.	0. 8. 51. 57	0. 14. 48. 0	2. 45. 54	2. 18. 24
3	W.	0. 20. 45. 50	0. 26. 46. 7	1. 49. 16	1. 18. 40
4	Th.	1. 2. 49. 32	1. 8. 56. 45	0. 46. 57 S	0. 14. 24 S
5	F.	1. 15. 8. 22	1. 21. 24. 57	0. 18. 42 N	0. 51. 58 N
6	Sa.	1. 27. 46. 59	2. 4. 14. 53	1. 25. 2	1. 57. 29
7	*Su.*	2. 10. 48. 57	2. 17. 29. 21	2. 28. 51	2. 58. 37
8	M.	2. 24. 16. 8	3. 1. 9. 10	3. 26. 20	3. 51. 25
9	Tu.	3. 8. 8. 8	3. 15. 12. 33	4. 13. 22	4. 31. 41
10	W.	3. 22. 21. 54	3. 29. 35. 20	4. 45. 59	4. 55. 53
11	Th.	4. 6. 51. 56	4. 14. 10. 45	5. 1. 3	5. 1. 17
12	F.	4. 21. 31. 1	4. 28. 51. 32	4. 56. 34	4. 46. 56
13	Sa.	5. 6. 11. 25	5. 13. 29. 53	4. 32. 36	4. 13. 49
14	*Su.*	5. 20. 46. 14	5. 27. 59. 53	3. 51. 0	3. 24. 33
15	M.	6. 5. 10. 23	6. 12. 17. 27	2. 55. 4	2. 23. 2
16	Tu.	6. 19. 20. 54	6. 26. 20. 39	1. 49. 6	1. 13. 45
17	W.	7. 3. 16. 43	7. 10. 9. 10	0. 37. 35 N	0. 1. 14 N
18	Th.	7. 16. 58. 6	7. 23. 43. 40	0. 34. 50 S	1. 10. 5 S
19	F.	8. 0. 26. 3	8. 7. 5. 20	1. 44. 2	2. 16 16
20	Sa.	8. 13. 41. 40	8. 20. 15. 11	2. 46. 24	3. 14. 2
21	*Su.*	8. 26. 45. 58	9. 3. 14. 3	3. 38. 54	4. 0. 44
22	M.	9. 9. 39. 30	9. 16. 2. 16	4. 19. 19	4. 34. 29
23	Tu.	9. 22. 22. 23	9. 28. 39. 49	4. 46. 8	4. 54. 11
24	W.	10. 4. 54. 31	10. 11. 6. 30	4. 58. 38	4. 59. 29
25	Th.	10. 17. 15. 47	10. 23. 22. 25	4. 56. 49	4. 50. 44
26	F.	10. 29. 26. 31	11. 5. 28. 10	4. 41. 21	4. 28. 53
27	Sa.	11. 11. 27. 38	11. 17. 25. 11	4. 13. 29	3. 55. 23
28	*Su.*	11. 23. 21. 6	11. 29. 15. 48	3. 34. 44	3. 11. 50
29	M.	0. 5. 9. 45	0. 11. 3. 28	2. 46. 52	2. 20. 5
30	Tu.	0. 16. 57. 29	0. 22. 52. 27	1. 51. 45	1. 22. 8
31	W.	0. 28. 48. 59	1. 4. 47. 45	0. 51. 27 S	0. 19. 59

JANUARY 1781. VI.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſsage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	M.	8	5. 13	358. 43	3. 59	4. 28 S	1. 45 S
2	Tu.	9	5. 51	9. 14	14. 31	1. 0 N	3. 43 N
3	W.	10	6. 31	19. 52	25. 19	6. 26	9. 7
4	Th.	11	7. 13	30. 53	36. 38	11. 45	14. 17
5	F.	12	7. 59	42. 34	48. 45	16. 42	18. 58
6	Sa.	13	8. 48	55. 10	61. 52	21. 3	22. 55
7	*Su.*	14	9. 42	68. 51	76. 6	24. 32	25. 51
8	M.	15	10. 40	83. 35	91. 18	26. 47	27. 19
9	Tu.	16	11. 41	99. 9	107. 5	27. 26	27. 6
10	W.	17	12. 41	115. 1	122. 54	26. 18	25. 4
11	Th.	18	13. 40	130. 39	138. 13	23. 25	21. 24
12	F.	19	14. 35	145. 35	152. 44	19. 3	16. 24
13	Sa.	20	15. 27	159. 41	166. 27	13. 29	10. 24
14	*Su.*	21	16. 17	173. 3	179. 31	7. 12	3. 55 N
15	M.	22	17. 6	185. 54	192. 14	0. 37 N	2. 40 S
16	Tu.	23	17. 54	198. 34	204. 53	5. 54 S	9. 2
17	W.	24	18. 44	211. 16	217. 44	12. 2	14. 52
18	Th.	25	19. 36	224. 19	231. 2	17. 28	19. 51
19	F.	26	20. 27	237. 52	244. 50	21. 57	23. 46
20	Sa.	27	21. 24	251. 56	259. 7	25. 13	26. 20
21	*Su.*	28	22. 19	266. 22	273. 38	27. 4	27. 26
22	M.	29	23. 13	280. 52	288. 1	27. 25	27. 3
23	Tu.	1	☌	295. 2	301. 54	26. 18	25. 15
24	W.	2	0. 5	308. 34	315. 3	23. 53	22. 15
25	Th.	3	0. 53	321. 19	327. 23	20. 23	18. 19
26	F.	4	1. 38	333. 16	338. 59	16. 4	13. 41
27	Sa.	5	2. 20	344. 33	349. 59	11. 11	8. 36
28	*Su.*	6	3. 0	355. 19	0. 35	5. 56	3. 14 S
29	M.	7	3. 39	5. 50	11. 5	0. 30 S	2. 14 N
30	Tu.	8	4. 18	16. 21	21. 40	4. 57 N	7. 38
31	W.	9	4. 59	27. 5	32. 38	10. 16	12. 49

VII. JANUARY 1781.

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon.	Semid^{r}. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	M.	14. 48	14. 49	54. 20	54. 23	5202	5198
2	Tu.	14. 51	14. 53	54. 28	54. 35	5191	5182
3	W.	14. 55	14. 59	54. 46	54. 58	5167	5152
4	Th.	15. 3	15. 8	55. 14	55. 32	5130	5107
5	F.	15. 13	15. 19	55. 51	56. 13	5082	5054
6	Sa.	15. 25	15. 31	56. 35	56. 58	5026	4996
7	*Su.*	15. 38	15. 45	57. 23	57. 48	4965	4933
8	M.	15. 52	15. 58	58. 12	58. 35	4903	4875
9	Tu.	16. 4	16. 9	58. 57	59. 17	4848	4823
10	W.	16. 14	16. 18	59. 34	59. 49	4802	4784
11	Th.	16. 22	16. 23	60. 2	60. 8	4769	4761
12	F.	16. 24	16. 25	60. 13	60. 15	4755	4753
13	Sa.	16. 24	16. 23	60. 13	60. 9	4755	4760
14	*Su.*	16. 22	16. 19	60. 2	59. 54	4769	4778
15	M.	16. 16	16. 13	59. 42	59. 30	4793	4808
16	Tu.	16. 9	16. 5	59. 17	59. 2	4823	4842
17	W.	16. 1	15. 57	58. 46	58. 31	4861	4880
18	Th.	15. 52	15. 48	58. 16	58. 0	4898	4918
19	F.	15. 44	15. 40	57. 44	57. 28	4938	4958
20	Sa.	15. 35	15. 31	57. 13	56. 58	4977	4996
21	*Su.*	15. 27	15. 23	56. 43	56. 28	5015	5035
22	M.	15. 19	15. 15	56. 13	55. 59	5054	5072
23	Tu.	15. 12	15. 8	55. 46	55. 32	5089	5107
24	W.	15. 5	15. 1	55. 19	55. 7	5124	5140
25	Th.	14. 58	14. 55	54. 56	54. 46	5154	5167
26	F.	14. 53	14. 51	54. 36	54. 29	5181	5190
27	Sa.	14. 49	14. 48	54. 22	54. 17	5199	5206
28	*Su.*	14. 47	14. 46	54. 14	54. 14	5210	5210
29	M.	14. 46	14. 47	54. 13	54. 16	5211	5207
30	Tu.	14. 49	14. 51	54. 21	54. 30	5201	5189
31	W.	14. 54	14. 59	54. 42	54. 58	5173	5152

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Aldebaran.	69. 27. 54	68. 0. 9	66. 32. 24	65. 4. 39	63. 36. 53	62. 9. 6	60. 41. 18	59. 13. 27
2		57. 45. 35	56. 17. 40	54. 49. 42	53. 21. 40	51. 53. 34	50. 25. 23	48. 57. 8	47. 28. 48
3		46. 0. 23	44. 31. 53	43. 3. 17	41. 34. 37	40. 5. 52	38. 37. 0	37. 8. 5	35. 39. 7
4		34. 10. 6	32. 40. 59	31. 11. 54	29. 42. 52	28. 13. 52	26. 44. 56	25. 16. 2	23. 47. 37
5		22. 19. 30	20. 51. 56	19. 25. 4	17. 58. 55	16. 33. 33			
5	Regulus.					95. 21. 56	93. 46. 54	92. 11. 31	90. 35. 47
6		88. 59. 42	87. 23. 16	85. 46. 28	84. 9. 18	82. 31. 47	80. 53. 54	79. 15. 38	77. 37. 0
7		75. 58. 0	74. 18. 37	72. 38. 52	70. 58. 45	69. 18. 15	67. 37. 23	65. 56. 10	64. 14. 35
8		62. 32. 38	60. 50. 20	59. 7. 40	57. 24. 41	55. 41. 20	53. 57. 40	52. 13. 41	50. 29. 24
9		48. 44. 49	46. 59. 56	45. 14. 48	43. 29. 24	41. 43. 44	39. 57. 48	38. 11. 41	36. 25. 23
10		34. 38. 53	32. 52. 12	31. 5. 26	29. 18. 37	27. 31. 43	25. 44. 50	23. 58. 1	22. 11. 18
11		20. 24. 39							
11	Spica ♍	74. 10. 43	72. 21. 53	70. 32. 56	68. 43. 51	66. 54. 38	65. 5. 21	63. 16. 0	61. 26. 37
12		59. 37. 11	57. 47. 46	55. 58. 20	54. 8. 56	52. 19. 32	50. 30. 11	48. 40. 53	46. 51. 40
13		45. 2. 30	43. 13. 26	41. 24. 28	39. 35. 38	37. 46. 55			

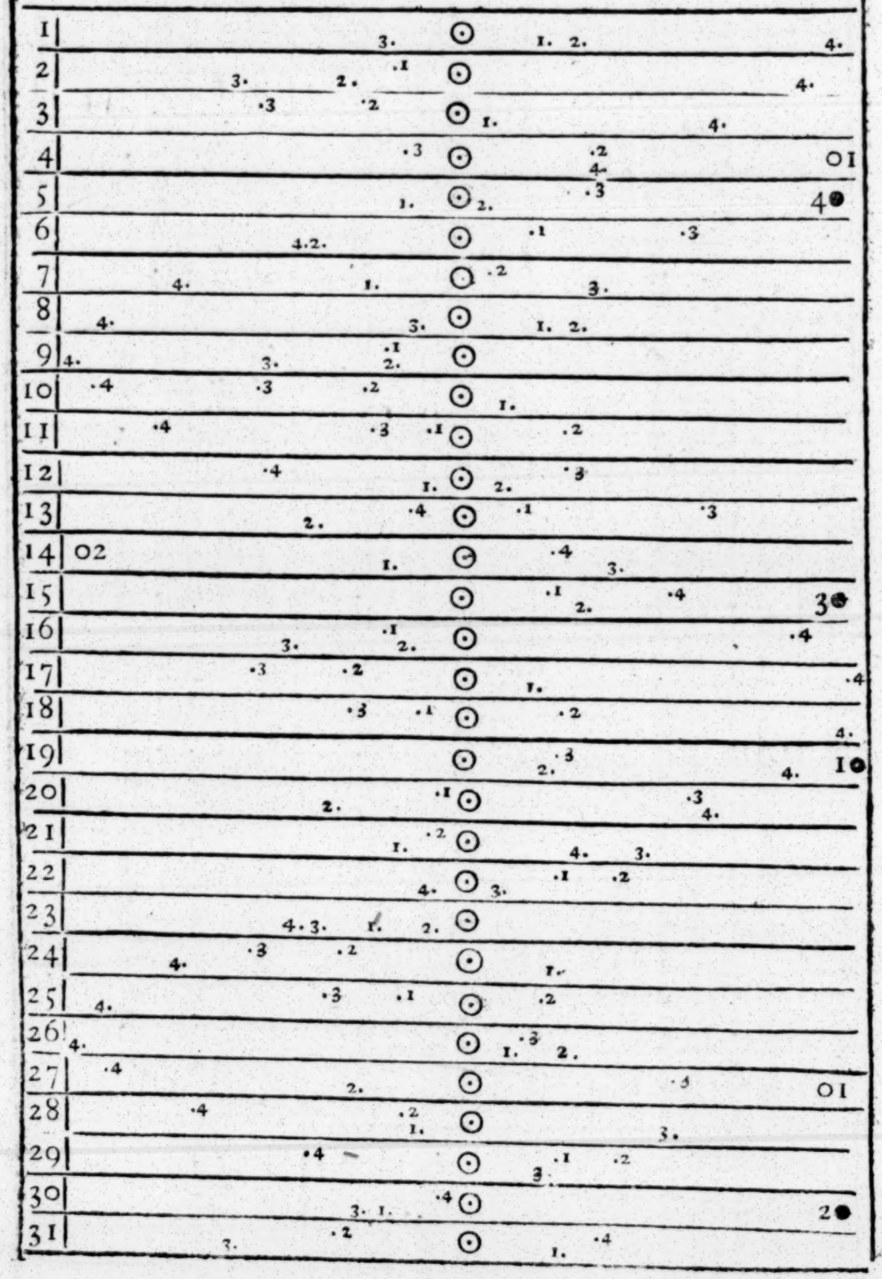
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours	12 Hours	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
13						83. 34. 45	81. 45. 41	79. 56. 45	78. 7. 57
14	Antares.	76. 19. 16	74. 30. 44	72. 42. 21	70. 54. 8	69. 6. 4	67. 18. 11	65. 30. 29	63. 42. 58
15		61. 55. 38	60. 8. 30	58. 21. 34	56. 34. 50	54. 48. 18	53. 1. 59	51. 15. 53	49. 30. 0
16		47. 44. 20	45. 58. 53	44. 13. 41	42. 28. 42	40. 43. 57			
14						117. 16. 36	115. 36. 43	113. 57. 1	112. 17. 29
15		110. 38. 7	108. 58. 56	107. 19. 56	105. 41. 8	104. 2. 31	102. 24. 7	100. 45. 55	99. 7. 55
16		97. 30. 8	95. 52. 34	94. 15. 12	92. 38. 4	91. 1. 8	89. 24. 26	87. 47. 57	86. 11. 41
17	The Sun.	84. 35. 39	82. 59. 50	81. 24. 15	79. 48. 53	78. 13. 44	76. 38. 49	75. 4. 7	73. 29. 39
18		71. 55. 24	70. 21. 2[illegible]	68. 47. 34	67. 13. 59	65. 40. 37	64. 7. 28	62. 34. 33	61. 1. 51
19		59. 29. 22	57. 57. 7	56. 25. 5	54. 53. 17	53. 21. 42	51. 50. 21	50. 19. 13	48. 48. 18
20		47. 17. 37	45. 47. 9	44. 16. 55	42. 46. 54	41. 17. 6			
26		96. 46. 47	95. 17. 14	93. 47. 50	92. 18. 33	90. 49. 24	89. 20. 22	87. 51. 27	86. 22. 39
27		84. 53. 58	83. 25. 22	81. 56. 53	80. 28. 29	79. 0. 12	77. 32. 2	76. 3. 56	74. 35. 56
28	Aldebaran.	73. 8. 1	71. 40. 9	70. 12. 21	68. 44. 36	67. 16. 55	65. 49. 17	64. 21. 42	62. 54. 9
29		61. 26. 39	59. 59. 10	58. 31. 42	57. 4. 15	55. 36. 49	54. 9. 24	52. 42. 0	51. 14. 35
30		49. 47. 11	48. 19. 45	46. 52. 19	45. 24. 52	43. 57. 25	42. 29. 56	41. 2. 28	39. 34. 59
31		38. 7. 30	36. 39. 59	35. 12. 30	33. 45. 3	32. 17. 39	30. 50. 19	29. 23. 5	27. 55. 58
F. 1		26. 28. 57							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1		75. 29. 50	76. 50. 34	78. 11. 20	79. 32. 7	80. 52. 56	82. 13. 48	83. 34. 43	84. 55. 42
2		86. 16. 45	87. 37. 52	88. 59. 6	90. 20. 25	91. 41. 52	93. 3. 26	94. 25. 8	95. 46. 59
3	The Sun.	97. 8. 58	98. 31. 7	99. 53. 28	101. 15. 59	102. 38. 41	104. 1. 35	105. 24. 43	106. 48. 3
4		108. 11. 37	109. 35. 25	110. 59. 28	112. 23. 47	113. 48. 20	115. 13. 9	116. 38. 16	118. 3. 39
5		119. 29. 20							
2		41. 21. 5	42. 41. 58	44. 3. 19	45. 25. 9	46. 47. 27	48. 10. 11	49. 33. 21	50. 56. 55
3	Fomal-haut.	52. 20. 55	53. 45. 17	55. 10. 1	56. 35. 8	58. 0. 37	59. 26. 26	60. 52. 36	62. 19. 7
4		63. 46. 0	65. 13. 13	66. 40. 48	68. 8. 44	69. 37. 1	71. 5. 38	72. 34. 36	74. 3. 55
5		75. 33. 36	77. 3. 37	78. 34. 0	80. 4. 43	81. 35. 48			
5						19. 2. 7	20. 22. 34	21. 44. 49	23. 8. 55
6		24. 34. 41	26. 1. 58	27. 30. 39	29. 0. 31	30. 31. 38	32. 3. 31	33. 36. 15	35. 9. 54
7	α Arietis.	36. 44. 18	38. 19. 24	39. 55. 9	41. 31. 34	43. 8. 39	44. 46. 18	46. 24. 29	48. 3. 14
8		49. 42. 32	51. 22. 19	53. 2. 35	54. 43. 19	56. 24. 32	58. 6. 11	59. 48. 15	61. 30. 42
9		63. 13. 35							

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
9	Aldebaran.	32. 49. 55	34. 32. 18	36. 15. 13	37. 58. 38	39. 42. 35	41. 26. 59	43. 11. 47	44. 56. 59
10		46. 42. 35	48. 28. 30	50. 14. 43	52. 1. 14	53. 48. 3	55. 35. 6	57. 22. 22	59. 9. 51
11		60. 57. 33	62. 45. 25	64. 33. 25	66. 21. 35	68. 9. 53	69. 58. 20	71. 46. 52	73. 35. 28
12		75. 24. 10	77. 12. 53	79. 1. 37	80. 50. 21	82. 39. 7	84. 27. 52	86. 16. 33	88. 5. 13
13		89. 53. 50							
13	Regulus.	10. 14. 13	11. 55. 40	13. 38. 13	15. 22. 0	17. 6. 42	18. 52. 12	20. 38. 21	22. 25. 0
14		24. 11. 54	25. 58. 45	27. 45. 40	29. 32. 36	31. 19. 32	33. 6. 24	34. 53. 10	36. 39. 52
15		38. 26. 29	40. 12. 57	41. 59. 16	43. 45. 26	45. 31. 28	47. 17. 18	49. 2. 58	50. 48. 27
16		52. 33. 46	54. 18. 53	56. 3. 49	57. 48. 33	59. 33. 5	61. 17. 24	63. 1. 31	64. 45. 25
17		66. 29. 7	68. 12. 36	69. 55. 52	71. 38. 56	73. 21. 47	75. 4. 25	76. 46. 50	78. 29. 2
18		80. 11. 1							
18	Spica ♍	26. 12. 54	27. 53. 57	29. 34. 53	31. 15. 41	32. 56. 22	34. 36. 55	36. 17. 18	37. 57. 32
19		39. 37. 37	41. 17. 30	42. 57. 13	44. 36. 45	46. 16. 7	47. 55. 18	49. 34. 18	51. 13. 7
20		52. 51. 46	54. 30. 14	56. 8. 31	57. 46. 37	59. 24. 32	61. 2. 16	62. 39. 48	64. 17. 10
21		65. 54. 21	67. 31. 21	69. 8. 10	70. 44. 48	72. 21. 15	73. 57. 32	75. 33. 38	77. 9. 33
22		78. 45. 17	80. 20. 50	81. 56. 13	83. 31. 24	85. 6. 25			

Configurations of the SATELLITES of JUPITER at 6 o'Clock in the Morning.



Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Th.	
2	F.	*Purification of V. Mary.*
3	Sa.	Blas. On mor. of Pur. 3 ret.
4	*Su.*	*5th Sunday after Epiphany.*
5	M.	Agatha.
6	Tu.	
7	W.	
8	Th.	
9	F.	In 8 days of Pur. 4 ret.
10	Sa.	
11	*Su.*	*Septuageſima-Sunday.*
12	M.	Hilary Term ends.
13	Tu.	
14	W.	Valentine.
15	Th.	
16	F.	
17	Sa.	
18	*Su.*	*Sexageſima-Sunday.*
19	M.	
20	Tu.	
21	W.	
22	Th.	
23	F.	Camb. Ter. div. m. [*born.*
24	Sa.	*St. Matthias. Pr. Adol. Fred.*
25	*Su.*	*Quinquageſima,* or *Shrove-*
26	M.	[*Sunday.*
27	Tu.	
28	W.	*Aſh-Wedneſday.*

Phaſes of the Moon.

	D. H. M.
Firſt Quarter –	1. 4. 56
Full Moon —	8. 8. 28
Laſt Quarter –	14. 23. 48
New Moon —	22. 17. 55

Other Phenomena.

D.
1. ♂ β ♏ diff. Lat. 16′.
☾ δ ♈ 13ʰ. 42′.
3. ☾ ν ♏ diff. Lat. 56′.
♄ ρ Serp. diff. Lat. 33′.
4. ☾ 125 ♉ 6ʰ. 42′.
5. ☾ ι ♊ 23ʰ. 39′.
6. ☾ 2 ad ψ ♋ 16ʰ. 53′.
8. ☾ η ♌ 15ʰ. 19′.
11. ☾ γ ♍ 10ʰ. 54′.
12. ☾ θ ♍ 0ʰ. 4′.
13. ☾ λ ♍ 7ʰ. 18′.
☾ α ♎ 21ʰ. 12′.
14. ☾ 1 ad ι ♎ 7ʰ. 27′.
15. ☾ δ ♏ 3ʰ. 49′.
17. ☉ enters ♓ at 17ʰ. 1′.
18. ☾ φ ♐ 0ʰ. 52′.
☾ σ ♐ 5ʰ. 3′.
☾ τ ♐ 9ʰ. 43′.
28. ☾ δ ♈ 20ʰ. 59′.

FEBRUARY 1781. II.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. South.	Equat. of Time. Add.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Th.	10. 13. 7. 6	21. 2. 21,8	16.54. 2	14. 9,9	6,7
2	F.	10. 14. 7. 54	21. 6. 25,1	16.36.35	14. 16,6	6,0
3	Sa.	10. 15. 8. 41	21. 10. 27,6	16.18.51	14. 22,6	5,1
4	*Su.*	10. 16. 9. 27	21. 14. 29,3	16. 0.49	14. 27,7	4,2
5	M.	10. 17. 10. 11	21. 18. 30,1	15.42.33	14. 31,9	3,6
6	Tu.	10. 18. 10. 54	21. 22. 30,2	15.23.59	14. 35,5	2,5
7	W.	10. 19. 11. 35	21. 26. 29,3	15. 5.10	14. 38,0	1,8
8	Th.	10. 20. 12. 14	21. 30. 27,7	14.46. 6	14. 39,8	1,1
9	F.	10. 21. 12. 52	21. 34. 25,3	14.26.47	14. 40,9	0,1
10	Sa.	10. 22. 13. 29	21. 38. 22,0	14. 7.14	14. 41,0	0,4
11	*Su.*	10. 23. 14. 5	21. 42. 18,1	13.47.27	14. 40,6	1,2
12	M.	10. 24. 14. 39	21. 46. 13,5	13.27.25	14. 39,4	2,1
13	Tu.	10. 25. 15. 11	21. 50. 8,0	13. 7.12	14. 37,3	2,7
14	W.	10. 26. 15. 43	21. 54. 1,8	12.46.46	14. 34,6	3,4
15	Th.	10. 27. 16. 13	21. 57. 54,9	12.26. 6	14. 31,2	4,1
16	F.	10. 28. 16. 42	22. 1. 47,3	12. 5.15	14. 27,1	4,9
17	Sa.	10. 29. 17. 10	22. 5. 39,0	11.44.12	14. 22,2	5,6
18	*Su.*	11. 0. 17. 36	22. 9. 30,0	11.22.58	14. 16,6	6,1
19	M.	11. 1. 18. 1	22. 13. 20,4	11. 1.34	14. 10,5	6,9
20	Tu.	11. 2. 18. 25	22. 17. 10,0	10.39.58	14. 3,6	7,4
21	W.	11. 3. 18. 47	22. 20. 59,2	10.18.13	13. 56,2	8,1
22	Th.	11. 4. 19. 7	22. 24. 47,6	9.56.19	13. 48,1	8,6
23	F.	11. 5. 19. 26	22. 28. 35,5	9.34.16	13. 39,5	9,3
24	Sa.	11. 6. 19. 43	22. 32. 22,7	9.12. 4	13. 30,2	10,0
25	*Su.*	11. 7. 19. 58	22. 36. 9,3	8.49.43	13. 20,2	10,5
26	M.	11. 8. 20. 11	22. 39. 55,4	8.27.16	13. 9,7	11,0
27	Tu.	11. 9. 20. 22	22. 43. 40,9	8. 4.41	12. 58,7	11,6
28	W.	11. 10. 20. 31	22. 47. 25,8	7.41.59	12. 47,1	12,0

FEBRUARY 1781.

Days.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 16,4	1. 8,0	2. 32,1	9,993862	1. 9. 1
7	16. 15,4	1. 7,4	2. 31,8	9,994307	1. 8. 42
13	16. 14,3	1. 6,7	2. 31,4	9,994836	1. 8. 23
19	16. 13,0	1. 6,1	2. 30,9	9,995430	1. 8. 4
25	16. 11,6	1. 5,6	2. 30,4	9,996057	1. 7. 45

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite. Immerſions.

Days	H. M. S.
1	19. 46. 35
3	14. 14. 42
5	8. 42. 54
7	3. 11. 3
8	21. 39. 22
10	16* 7. 40
12	10. 36. 1
14	5. 4. 23
15	23. 32. 49
17	18* 1. 14
19	12. 29. 44
21	6. 58. 15
23	1. 26. 50
24	19. 55. 24
26	14*24. 7
28	8. 52. 48

II. Satellite.

Days	H. M. S.
2	7. 3. 40 I
2	9. 20. 29 E
5	20. 20. 20 I
5	22. 37. 13 E
9	9. 37. 11 I
9	11. 54. 8 E
12	22. 54. 9 I
13	1. 11. 9 E
16	12. 11. 14 I
16	14*28. 17 E
20	1. 28. 26 I
20	3. 45. 33 E
23	14*45. 44 I
23	17* 2. 56 E
27	4. 3. 14 I
27	6. 20. 31 E

III. Satellite.

Days.	H. M. S.
5	0. 27. 11 I
5	2. 0. 21 E
12	4. 24. 12 I
12	5. 57. 42 E
19	8. 22. 6 I
19	9. 56. 0 E
26	12. 20. 30 I
26	13*54. 40 E

IV. Satellite. Conj.

7	7. 32 Sup.
15	17*37 Inf.
24	1. 25 Sup.

FEBRUARY 1781. IV.

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Passage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
			MERCURY. Snp. ☌ 18^{d}. $15^{h}\frac{1}{2}$.			
1	9. 3. 1	5. 9 S	10. 0. 39	1. 44 S	21. 44 S	23. 13
4	9. 11. 38	5. 48	10. 5. 30	1. 54	20. 46	23. 22
7	9. 20. 38	6. 21	10. 10. 28	2. 1	19. 35	23. 30
10	10. 0. 3	6. 44	10. 15. 33	2. 5	18. 11	23. 39
13	10. 10. 2	6. 58	10. 20. 45	2. 5	16. 34	23. 48
16	10. 20. 45	6. 58	10. 26. 7	2. 1	14. 44	23. 57
19	11. 2. 21	6. 43	11. 1. 36	1. 53	12. 41	0. 4
22	11. 14. 59	6. 7	11. 7. 12	1. 40	10. 25	0. 13
25	11. 28. 49	5. 8	11. 12. 54	1. 22	8. 0	0. 22
28	0. 13. 59	3. 42	11. 18. 40	0. 58	5. 23	0. 32
			VENUS.			
1	7. 29. 45	0. 53 N	9. 12. 55	0. 28 N	22. 22 S	21. 55
7	8. 9. 17	0. 19 N	9. 20. 19	0. 10 N	21. 46	22. 3
13	8. 18. 49	0. 15 S	9. 27. 44	0. 8 S	20. 46	22. 10
19	8. 28. 18	0. 48	10. 5. 9	0. 24	19. 23	22. 18
25	9. 7. 48	1. 20	10. 12. 35	0. 39	17. 41	22. 26
			MARS.			
1	6. 24. 3	0. 45 N	8. 0. 6	0. 46 N	19. 27 S	18. 49
7	6. 26. 53	0. 40	8. 3. 40	0. 42	20. 14	18. 39
13	6. 29. 45	0. 35	8. 7. 12	0. 38	20. 54	18. 29
19	7. 2. 38	0. 29	8. 10. 42	0. 33	21. 32	18. 21
25	7. 5. 33	0. 24	8. 14. 10	0. 28	22. 4	18. 14
			JUPITER. □ 14^{d}. $2^{h}\frac{3}{4}$.			
1	7. 14. 51	1. 4 N	7. 25. 8	1. 2 N	18. 4 S	18. 29
7	7. 15. 18	1. 4	7. 25. 46	1. 3	18. 12	18. 6
13	7. 15. 46	1. 3	7. 26. 18	1. 4	18. 19	17. 44
19	7. 16. 14	1. 3	7. 26. 45	1. 5	18. 24	17. 23
25	7. 16. 42	1. 2	7. 27. 7	1. 6	18. 28	17. 2
			SATURN.			
1	8. 12. 59	1. 34 N	8. 17. 37	1. 30 N	21. 24 S	20. 4
7	8. 13. 9	1. 34	8. 18. 6	1. 31	21. 26	19. 41
13	8. 13. 20	1. 34	8. 18. 32	1. 31	21. 28	19. 19
19	8. 13. 31	1. 33	8. 18. 55	1. 31	21. 30	18. 57
25	8. 13. 42	1. 33	8. 19. 15	1. 32	21. 30	18. 36

FEBRUARY 1781.

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	Th.	1. 10. 49. 32	1. 16. 54. 55	0. 11. 59 N	0. 44. 7 N
2	F.	1. 23. 4. 38	1. 29. 19. 23	1. 16. 8	1. 47. 39
3	Sa.	2. 5. 39. 45	2. 12. 6. 18	2. 18. 18	2. 47. 40
4	*Su.*	2. 18. 39. 33	2. 25. 19. 54	3. 15. 18	3. 40. 45
5	M.	3. 2. 7. 33	3. 9. 2. 33	4. 3. 33	4. 23. 10
6	Tu.	3. 16. 4. 48	3. 23. 14. 3	4. 39. 10	4. 51. 4
7	W.	4. 0. 29. 40	4. 7. 50. 54	4. 58. 28	5. 1. 1
8	Th.	4. 15. 16. 49	4. 22. 46. 15	4. 58. 34	4. 50. 57
9	F.	5. 0. 18. 5	5. 7. 50. 51	4. 38. 16	4. 20. 39
10	Sa.	5. 15. 23. 22	5. 22. 54. 26	3. 58. 30	3. 32. 11
11	*Su.*	6. 0. 22. 53	6. 7. 47. 50	3. 2. 20	2. 29. 37
12	M.	6. 15. 8. 30	6. 22. 24. 17	1. 54. 41	1. 18. 10
13	Tu.	6. 29. 34. 52	7. 6. 39. 59	0. 40. 49 N	0. 3. 17 N
14	W.	7. 13. 39. 33	7. 20. 33. 43	0. 33. 49 S	1. 10. 1 S
15	Th.	7. 27. 22. 33	8. 4. 6. 21	1. 44. 43	2. 17. 30
16	F.	8. 10. 45. 19	8. 17. 19. 47	2. 48. 0	3. 15. 57
17	Sa.	8. 23. 50. 9	9. 0. 16. 39	3. 40. 57	4. 2. 51
18	*Su.*	9. 6. 39. 36	9. 12. 59. 17	4. 21. 34	4. 36. 51
19	M.	9. 19. 16. 2	9. 25. 30. 2	4. 48. 39	4. 56. 53
20	Tu.	10. 1. 41. 30	10. 7. 50. 36	5. 1. 35	5. 2. 43
21	W.	10. 13. 57. 31	10. 20. 2. 24	5. 0. 22	4. 54. 34
22	Th.	10. 26. 5. 23	11. 2. 6. 31	4. 45. 30	4. 33. 16
23	F.	11. 8. 6. 3	11. 14. 4. 1	4. 18. 2	4. 0. 0
24	Sa.	11. 20. 0. 38	11. 25. 56. 6	3. 39. 25	3. 16. 26
25	*Su.*	0. 1. 50. 41	0. 7. 44. 35	2. 51. 26	2. 24. 28
26	M.	0. 13. 38. 15	0. 19. 31. 53	1. 55. 58	1. 26. 11
27	Tu.	0. 25. 26. 4	1. 1. 21. 13	0. 55. 24 S	0. 23. 51 S
28	W.	1. 7. 17. 53	1. 13. 16. 37	0. 8. 4 N	0. 40. 8 N

FEBRUARY 1781.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſsage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſcen. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	Th.	9	5. 42	38. 20	44. 13	15. 17 N	17. 37 N
2	F.	10	6. 28	50. 20	56. 42	19. 48	21. 47
3	Sa.	11	7. 19	63. 19	70. 12	23. 33	25. 2
4	*Su.*	12	8. 14	77. 21	84. 45	26. 14	27. 4
5	M.	13	9. 13	92. 23	100. 11	27. 31	27. 32
6	Tu.	14	10. 16	108. 4	115. 59	27. 7	26. 15
7	W.	15	11. 16	123. 53	131. 40	24. 55	23. 10
8	Th.	16	12. 15	139. 19	146. 47	21. 1	18. 31
9	F.	17	13. 10	154. 5	161. 11	15. 43	12. 40
10	Sa.	18	14. 3	168. 6	174. 53	9. 26	6. 4 N
11	*Su.*	19	14. 53	181. 34	188. 9	2. 38 N	0. 48 S
12	M.	20	15. 44	194. 41	201. 13	4. 12 S	7. 31
13	Tu.	21	16. 35	207. 45	214. 20	10. 42	13. 43
14	W.	22	17. 27	221. 1	227. 47	16. 30	19. 2
15	Th.	23	18. 21	234. 40	241. 39	21. 18	23. 15
16	F.	24	19. 16	248. 44	255. 53	24. 52	26. 7
17	Sa.	25	20. 12	263. 6	270. 19	27. 0	27. 30
18	*Su.*	26	21. 7	277. 30	284. 37	27. 39	27. 26
19	M.	27	21. 59	291. 37	298. 28	26. 51	25. 55
20	Tu.	28	22. 49	305. 10	311. 41	24. 42	23. 12
21	W.	29	23. 35	317. 59	324. 6	21. 27	19. 29
22	Th.	1	☌	330. 2	335. 48	17. 19	14. 59
23	F.	2	0. 17	341. 24	346. 52	12. 31	9. 58
24	Sa.	3	0. 58	352. 16	357. 34	7. 19	4. 37 S
25	*Su.*	4	1. 38	2. 50	8. 4	1. 53 S	0. 52 N
26	M.	5	2. 17	13. 18	18. 34	3. 36 N	6. 19
27	Tu.	6	2. 57	23. 55	29. 20	8. 59	11. 35
28	W.	7	3. 41	34. 54	40. 36	14. 6	16. 29

FEBRUARY 1781.

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon.	Semid^{r}. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	Th.	15. 2	15. 6	55. 10	55. 26	5136	5115
2	F.	15. 12	15. 18	55. 47	56. 9	5087	5059
3	Sa.	15. 25	15. 32	56. 33	57. 0	5028	4994
4	*Su.*	15. 39	15. 47	57. 27	57. 55	4960	4924
5	M.	15. 55	16. 2	58. 23	58. 51	4890	4855
6	Tu.	16. 10	16. 16	59. 18	59. 42	4822	4793
7	W.	16. 23	16. 28	60. 6	60. 26	4764	4740
8	Th.	16. 33	16. 36	60. 43	60. 55	4719	4705
9	F.	16. 38	16. 39	61. 3	61. 7	4696	4691
10	Sa.	16. 39	16. 37	61. 6	61. 0	4692	4699
11	*Su.*	16. 35	16. 31	60. 52	60. 39	4709	4724
12	M.	16. 27	16. 22	60. 23	60. 5	4743	4765
13	Tu.	16. 17	16. 11	59. 45	59. 23	4789	4816
14	W.	16. 5	15. 58	59. 0	58. 38	4844	4871
15	Th.	15. 52	15. 46	58. 14	57. 51	4901	4930
16	F.	15. 40	15. 34	57. 29	57. 8	4957	4984
17	Sa.	15. 29	15. 23	56. 48	56. 28	5009	5035
18	*Su.*	15. 18	15. 14	56. 11	55. 55	5056	5077
19	M.	15. 10	15. 6	55. 39	55. 24	5098	5118
20	Tu.	15. 2	14. 59	55. 12	55. 0	5133	5149
21	W.	14. 56	14. 53	54. 49	54. 39	5163	5177
22	Th.	14. 51	14. 49	54. 31	54. 24	5187	5197
23	F.	14. 48	14. 46	54. 18	54. 13	5205	5211
24	Sa.	14. 45	14. 45	54. 9	54. 7	5217	5219
25	*Su.*	14. 45	14. 45	54. 6	54. 7	5221	5219
26	M.	14. 45	14. 46	54. 8	54. 12	5218	5213
27	Tu.	14. 48	14. 50	54. 18	54. 26	5205	5194
28	W.	14. 53	14. 56	54. 36	54. 49	5181	5163

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Pollux.	69. 29. 57	67. 58. 41	66. 27. 10	64. 55. 24	63. 23. 22	61. 51. 6	60. 18. 33	58. 45. 43
2		57. 12. 37	55. 39. 11	54. 5. 26	52. 31. 22	50. 56. 59	49. 22. 16	47. 47. 12	46. 11. 48
3		44. 36. 2	42. 59. 54	41. 23. 23	39. 46. 29	38. 9. 13	36. 31. 34	34. 53. 30	33. 15. 3
4		31. 36. 12							
4	Regulus.	68. 8. 31	66. 29. 24	64. 49. 51	63. 9. 53	61. 29. 29	59. 48. 40	58. 7. 28	56. 25. 48
5		54. 43. 44	53. 1. 15	51. 18. 21	49. 35. 3	47. 51. 20	46. 7. 13	44. 22. 42	42. 37. 49
6		40. 52. 33	39. 6. 53	37. 20. 53	35. 34. 34	33. 47. 55	32. 0. 56	30. 13. 44	28. 26. 20
7		26. 38. 44	24. 51. 0	23. 3. 12	21. 15. 21	19. 27. 27			
7	Spica ♍					73. 12. 19	71. 21. 53	69. 31. 12	67. 40. 15
8		65. 49. 3	63. 57. 38	62. 6. 2	60. 14. 14	58. 22. 16	56. 30. 8	54. 37. 53	52. 45. 33
9		50. 53. 5	49. 0. 34	47. 8. 2	45. 15. 29	43. 22. 55	41. 30. 22	39. 37. 53	37. 45. 28
10		35. 53. 7	34. 0. 55	32. 8. 53	30. 17. 0	28. 25. 13	26. 33. 45	24. 42. 39	22. 51. 51
11		21. 1. 22							

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S	D. M. S.	D. M. S.
11	Antares.	66. 41. 56	64. 50. 17	62. 58. 51	61. 7. 39	59. 16. 40	57. 25. 56	55. 35. 29	53. 45. 17
12		51. 55. 22	50. 5. 45	48. 16. 26	46. 27. 26	44. 38. 44	42. 50. 22	41. 2. 20	39. 14. 39
13		37. 27. 16	35. 40. 16	33. 53. 37	32. 7. 19	30. 21. 22			
13	α Aquilæ.					83. 0. 39	81. 33. 36	80. 7. 2	78. 40. 55
14		77. 15. 17	75. 50. 10	74. 25. 38	73. 1. 41	71. 38. 19	70. 15. 35	68. 53. 34	67. 32. 14
15		66. 11. 36							
12	The Sun.						120. 39. 39	118. 59. 32	117. 19. 44
13		115. 40. 14	114. 1. 3	112. 22. 12	110. 43. 40	109. 5. 28	107. 27. 38	105. 50. 7	104. 12. 58
14		102. 36. 8	100. 59. 38	99. 23. 29	97. 47. 40	96. 12. 11	94. 37. 3	93. 2. 15	91. 27. 48
15		89. 53. 40	88. 19. 52	86. 46. 23	85. 13. 14	83. 40. 25	82. 7. 56	80. 35. 44	79. 3. 52
16		77. 32. 18	76. 1. 2	74. 30. 4	72. 59. 24	71. 29. 1	69. 58. 55	68. 29. 5	66. 59. 32
17		65. 30. 15	64. 1. 15	62. 32. 30	61. 4. 1	59. 35. 47	58. 7. 48	56. 40. 4	55. 12. 34
18		53. 45. 19	52. 18. 18	50. 51. 31	49. 24. 58	47. 58. 38	46. 32. 30	45. 6. 35	43. 40. 53
19		42. 15. 24	40. 50. 8	39. 25. 4					
24	Aldebaran.					70. 35. 10	69. 7. 22	67. 39. 37	66. 11. 56
25		64. 44. 19	63. 16. 45	61. 49. 13	60. 21. 44	58. 54. 18	57. 26. 53	55. 59. 31	54. 32. 11
26		53. 4. 53	51. 37. 39	50. 10. 27	48. 43. 17	47. 16. 10	45. 49. 4	44. 22. 0	42. 54. 59
27		41. 28. 1	40. 1. 6	38. 34. 15	37. 7. 28	35. 40. 46	34. 14. 6	32. 47. 36	31. 21. 15
28		29. 55. 4	28. 28. 58	27. 3. 13	25. 37. 50	24. 12. 49	22. 48. 19	21. 24. 28	20. 1. 16
M. 1		18. 38. 44							

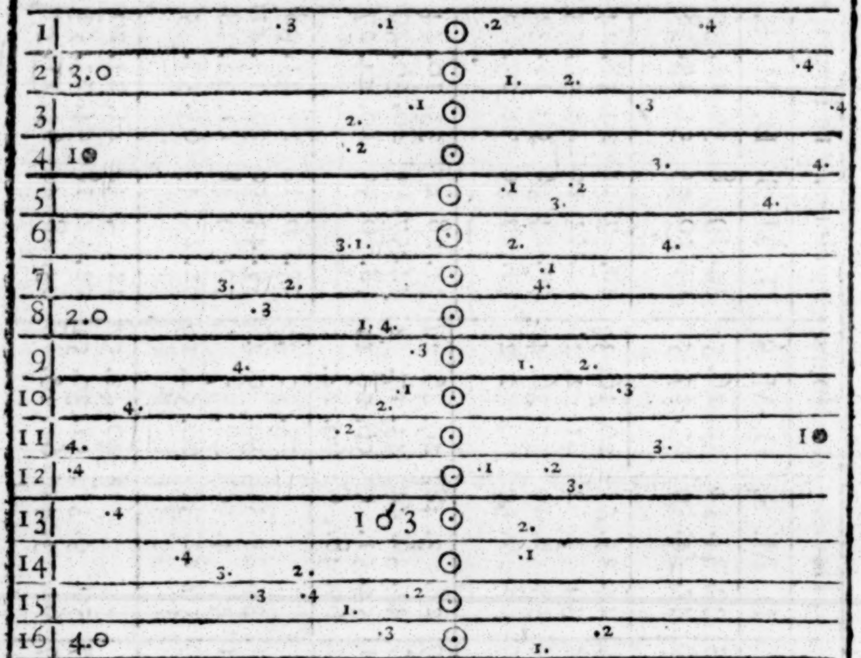
Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	The Sun.	87. 42. 26	89. 5. 48	90. 29. 26	91. 53. 17	93. 17. 24	94. 41. 46	96. 6. 26	97. 31. 22
2		98. 56. 36	100. 22. 8	101. 47. 59	103. 14. 10	104. 40. 39	106. 7. 28	107. 34. 39	109. 2. 10
3		110. 30. 2	111. 58. 16	113. 26. 52	114. 55. 51	116. 25. 12	117. 54. 57	119. 25. 5	120. 55. 38
1	α Pegaſi.					58. 19. 51	59. 41. 57	61. 4. 34	62. 27. 43
2		63. 51. 24	65. 15. 36	66. 40. 17	68. 5. 28	69. 31. 9	70. 57. 19	72. 23. 57	73. 51. 2
3		75. 18. 36							
3	α Arietis.	31. 47. 36	33. 18. 28	34. 50. 4	36. 22. 23	37. 55. 27	39. 29. 12	41. 3. 36	42. 38. 38
4		44. 14. 19	45. 50. 34	47. 27. 24	49. 4. 48	50. 42. 47	52. 21. 19	54. 0. 24	55. 40. 0
5		57. 20. 8							
5	Aldeba-ran.	27. 5. 59	28. 44. 30	30. 23. 48	32. 3. 53	33. 44. 45	35. 26. 20	37. 8. 34	38. 51. 27
6		40. 34. 59	42. 19. 4	44. 3. 41	45. 48. 50	47. 34. 31	49. 20. 40	51. 7. 16	52. 54. 19
7		54. 41. 49	56. 29. 43	58. 17. 59	60. 6. 38	61. 55. 38	63. 44. 59	65. 34. 37	67. 24. 33
8		69. 14. 47							

XI. FEBRUARY 1781.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S	D. M S.	D. M. S.
8		25. 0. 8	26. 51. 28	28. 43. 3	30. 34. 51	32. 26. 54	34. 19. 8	36. 11. 30	38. 4. 1
9	Pollux.	39. 56. 40	41. 49. 23	43. 42. 9	45. 34. 59	47. 27. 51	49. 20. 45	51. 13. 38	53. 6. 29
10		54. 59. 20							
10		18. 54. 38	20. 44. 51	22. 35. 15	24. 25. 51	26. 16. 38	28. 7. 31	29. 58. 24	31. 49. 18
11		33. 40. 12	35. 30. 57	37. 21. 34	39. 12. 2	41. 2. 22	42. 52. 29	44. 42. 23	46. 32. 4
12	Regulus.	48. 21. 32	50. 10. 44	51. 59. 40	53. 48. 19	55. 36. 42	57. 24. 46	59. 12. 32	61. 0. 0
13		62. 47. 9	64. 33. 59	66. 20. 29	68. 6. 39	69. 52. 29	71. 37. 59	73. 23. 8	75. 7. 56
14		76. 52. 23							
14		22. 54. 38	24. 37. 56	26. 20. 59	28. 3. 48	29. 46. 22	31. 28. 41	33. 10. 44	34. 52. 31
15	Spica ♍	36. 34. 1	38. 15. 13	39. 56. 7	41. 36. 44	43. 17. 4	44. 57. 5	46. 36. 49	48. 16. 15
16		49. 55. 24	51. 34. 16	53. 12. 51	54. 51. 9	56. 29. 11	58. 6. 57	59. 44. 27	61. 21. 41
17		62. 58. 40	64. 35. 24	66. 11. 52	67. 48. 6	69. 24. 5			
17						23. 30. 38	25. 6. 14	26. 41. 38	28. 16. 49
18		29. 51. 48	31. 26. 35	33. 1. 11	34. 35. 35	36. 9. 48	37. 43. 50	39. 17. 41	40. 51. 22
19	Antares.	42. 24. 52	43. 58. 11	45. 31. 21	47. 4. 20	48. 37. 0	50. 9. 48	51. 42. 18	53. 14. 39
20		54. 46. 51	56. 18. 54	57. 50. 49	59. 22. 35	60. 54. 13	62. 25. 43	63. 57. 5	65. 28. 20
21		66. 59. 27							
26						40. 42. 52	42. 3. 34	43. 24. 20	44. 45. 12
27	The Sun.	46. 6. 8	47. 27. 10	48. 48. 17	50. 9. 31	51. 30. 51	52. 52. 18	54. 13. 51	55. 35. 33
28		56. 57. 22	58. 19. 20	59. 41. 27	61. 3. 43	62. 26. 9	63. 48. 44	65. 11. 31	66. 34. 28
M. 1		67. 57. 36							

Configurations of the SATELLITES of JUPITER at Half an Hour past 5 o' Clock in the Morning.



Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Th.	David.
2	F.	Chad.
3	Sa.	
4	*Su.*	*1ſt Sunday in Lent.*
5	M.	*Prs. of Heſſe born.*
6	Tu.	
7	W.	Perpetua.
8	Th.	
9	F.	
10	Sa.	
11	*Su.*	*2d Sunday in Lent.*
12	M.	Gregory M.
13	Tu.	
14	W.	
15	Th.	
16	F.	
17	Sa.	
18	*Su.*	*3d Sunday in Lent.* Ed.
19	M.	[K. of W. Sax.
20	Tu.	
21	W.	Benedict.
22	Th.	
23	F.	
24	Sa.	
25	*Su.*	*4th Su. in Lent. Midl. Su.*
26	M.	*[Annunciat. of V. Mary.*
27	Tu.	
28	W.	
29	Th.	
30	F.	
31	Sa.	

Phases of the Moon.

	D.H.M.
Firſt Quarter —	2. 22. 35
Full Moon —	9. 18. 32
Laſt Quarter —	16. 11. 26
New Moon —	24. 12. 7

Other Phenomena.

D.
3. ☾ 125 ♉ 15ʰ. 35′.
5. ☾ ι ♊ 9ʰ. 47′.
6. ☾ 2 ad ψ ♋ 3ʰ. 28′.
8. ☾ η ♌ 2ʰ. 35′.
10. ☾ η ♍ 12ʰ. 52′.
☾ γ ♍ 21ʰ. 17′.
11. ☾ θ ♍ 10ʰ. 3′.
12. ☾ λ ♍ 16ʰ. 13′.
13. ☾ α ♎ 5ʰ. 37′.
♃ Stationary.
☾ 1 ad ι ♎ Im. 14ʰ. 21′.
* 7′½ N. of ☽'s cent.
Em. 15ʰ. 18′. * 13′
North.
14. ☾ ☌ ♏ 11ʰ. 9′.
17. ☾ φ ♐ 6ʰ. 46′.
☾ τ ♐ 15ʰ. 31′.
19. ☉ enters ♈ at 17ʰ. 29′.
20. ☾ ε ♑ 12ʰ. 8′.
22. ♀ φ ♒ diff. Lat. 20′.
23. ☿ Stationary.
28. ☾ ☌ ♈ 3ʰ. 10′.
29. ♄ Stationary.

MARCH 1781. II.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. South.	Equat. of Time. Sub,	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Th.	11. 11. 20. 39	22.51.10,3	7. 19. 9	12. 35,1	12,6
2	F.	11. 12. 20. 43	22.54.54,1	6. 56. 15	12. 22,5	13,2
3	Sa.	11. 13. 20. 45	22.58.37,5	6. 33. 15	12. 9,3	13,6
4	*Su.*	11. 14. 20. 44	23. 2.20,4	6. 10. 10	11. 55,7	14,2
5	M.	11. 15. 20. 42	23. 6. 2,7	5. 46. 59	11. 41,5	14,6
6	Tu.	11. 16. 20. 38	23. 9.44,7	5. 23. 44	11. 26,9	15,0
7	W.	11. 17. 20. 31	23.13.26,3	5. 0. 24	11. 11,9	15,3
8	Th.	11. 18. 20. 22	23.17. 7,4	4. 37. 1	10. 56,6	15,7
9	F.	11. 19. 20. 11	23.20.48,2	4. 13. 35	10. 40,9	16,1
10	Sa.	11. 20. 19. 58	23.24.28,6	3. 50. 5	10. 24,8	16,5
11	*Su.*	11. 21. 19. 43	23.28. 8,7	3. 26. 33	10. 8,3	16,7
12	M.	11. 22. 19. 27	23.31.48,5	3. 2. 58	9. 51,6	16,9
13	Tu.	11. 23. 19. 8	23.35.28,1	2. 39. 21	9. 34,7	17,2
14	W.	11. 24. 18. 47	23.39. 7,5	2. 15. 43	9. 17,5	17,4
15	Th.	11. 25. 18. 25	23.42.46,4	1. 52. 2	9. 0,1	17,6
16	F.	11. 26. 18. 1	23.46.25,4	1. 28. 21	8. 42,5	17,8
17	Sa.	11. 27. 17. 36	23.50. 4,1	1. 4. 39	8. 24,7	18,0
18	*Su.*	11. 28. 17. 9	23.53.42,6	0. 40. 57	8. 6,7	18,1
19	M.	11. 29. 16. 40	23.57.21,0	0. 17. 16	7. 48,6	18,3
20	Tu.	0. 0. 16. 9	0. 0.59,2	NORTH. 0. 6. 26	7. 30,3	18,3
21	W.	0. 1. 15. 37	0. 4.37,4	0. 30. 7	7. 12,0	18,4
22	Th.	0. 2. 15. 3	0. 8.15,6	0. 53. 46	6. 53,6	18,5
23	F.	0. 3. 14. 27	0.11.53,6	1. 17. 24	6. 35,1	18,6
24	Sa.	0. 4. 13. 49	0.15.31,6	1. 41. 0	6. 16,5	18,6
25	*Su.*	0. 5. 13. 9	0.19. 9,5	2. 4. 34	5. 57,9	18,5
26	M.	0. 6. 12. 27	0.22.47,4	2. 28. 5	5. 39,4	18,6
27	Tu.	0. 7. 11. 42	0.26.25,3	2. 51. 33	5. 20,8	18,5
28	W.	0. 8. 10. 56	0.30. 3,3	3. 14. 58	5. 2,3	18,5
29	Th.	0. 9. 10. 7	0.33.41,3	3. 38. 18	4. 43,8	18,5
30	F.	0. 10. 9. 16	0.37.19,2	4. 1. 35	4. 25,3	18,5
31	Sa.	0. 11. 8. 22	0.40.57,3	4. 24. 47	4. 6,8	18,4

Days of the Month.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 10,6	1. 5,2	2. 30,2	9.996484	1. 7. 33
7	16. 9,1	1. 4,9	2. 29,7	9.997157	1. 7. 13
13	16. 7,4	1. 4,6	2. 29,2	9.997871	1. 6. 54
19	16. 5,9	1. 4,4	2. 28,8	9.998629	1. 6. 35
25	16. 4,2	1. 4,3	2. 28,3	9.999388	1. 6. 16

Eclipſes of the SATELLITES of JUPITER.

I. Satellite. Immerſions.		II. Satellite. Immerſions.		III. Satellite.	
Days	H. M. S.	Days	H. M. S.	Days	H. M. S.
2	3. 21. 29	2	17*20. 39	5	16*19. 28 I
3	21. 50. 13	6	6. 38. 11	5	17. 54. 0 E
5	16*19. 0	9	19. 55. 48	12	20. 18. 48 I
7	10. 47. 49	13	9. 13. 27	12	21. 53. 48 E
9	5. 16. 39	16	22. 31. 6	20	0. 18. 24 I
10	23. 45. 30	20	11. 48. 48	20	1. 53. 56 E
12	18. 14. 20	24	1. 6. 32	27	4. 18. 15 I
14	12*43. 13	27	14*24. 12	27	5. 54. 10 E
16	7. 12. 7	31	3. 41. 57		
18	1. 41. 2			IV. Satellite. Conj.	
19	20. 9. 56				
21	14*38. 52			4	11. 10 Inf.
23	9. 7. 48			12	18. 28 Sup.
25	3. 36. 45			21	3. 46 Inf.
26	22. 5. 42			29	10. 33 Sup.
28	16*34. 38				
30	11. 3. 34				

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Paſſage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
MERCURY. Greateſt Elong. 16^{d}						
1	0. 19. 20	3. 8 S	11. 20. 35	0. 49 S	4. 29 S	0. 36
4	1. 6. 17	1. 9 S	11. 26. 16	0. 18 S	1. 46 S	0. 45
7	1. 24. 21	1. 4 N	0. 1. 44	0. 17 N	0. 57 N	0. 53
10	2. 13. 9	3. 14	0. 6. 46	0. 55	3. 32	0. 59
13	3. 2. 4	5. 4	0. 11. 10	1. 35	5. 52	1. 3
16	3. 20. 23	6. 20	0. 14. 43	2. 12	7. 50	1. 4
19	4. 7. 39	6. 56	0. 17. 14	2. 44	9. 18	1. 2
22	4. 23. 33	6. 56	0. 18. 39	3. 8	10. 13	0. 56
25	5. 8. 1	6. 29	0. 18. 51	3. 21	10. 30	0. 45
28	5. 21. 8	5. 43	0. 18. 2	3. 21	10. 10	0. 31
31	6. 3. 5	4. 45	0. 16. 21	3. 5	9. 17	0. 15
VENUS.						
1	9. 14. 8	1. 40 S	10. 17. 32	0. 48 S	16. 22 S	22. 31
7	9. 23. 37	2. 8	10. 24. 57	1. 0	14. 10	22. 38
13	10. 3. 5	2. 32	11. 2. 23	1. 11	11. 45	22. 44
19	10. 12. 34	2. 52	11. 9. 47	1. 19	9. 8	22. 51
25	10. 22. 3	3. 8	11. 17. 12	1. 25	6. 22	22. 57
MARS. □ 12^{d}. 16^{h}.						
1	7. 7. 30	0. 20 N	8. 16. 28	0. 24 N	22. 23 S	18. 9
7	7. 10. 27	0. 15	8. 19. 51	0. 18	22. 47	18. 2
13	7. 13. 26	0. 9	8. 23. 10	0. 11	23. 6	17. 54
19	7. 16. 27	0. 3 N	8. 26. 26	0. 4 N	23. 21	17. 46
25	7. 19. 29	0. 3 S	8. 29. 38	0. 4 S	23. 32	17. 38
JUPITER.						
1	7. 17. 0	1. 2 N	7. 27. 16	1. 6 N	18. 30 S	16. 47
7	7. 17. 28	1. 2	7. 27. 25	1. 7	18. 31	16. 26
13	7. 17. 55	1. 1	7. 27. 28	1. 8	18. 31	16. 4
19	7. 18. 23	1. 1	7. 27. 25	1. 9	18. 30	15. 42
25	7. 18. 51	1. 1	7. 27. 14	1. 9	18. 26	15. 19
SATURN. □ 9^{d}. 10^{h}.						
1	8. 13. 50	1. 33 N	8. 19. 26	1. 32 N	21. 31 S	18. 21
7	8. 14. 0	1. 32	8. 19. 40	1. 32	21. 32	17. 59
13	8. 14. 11	1. 32	8. 19. 52	1. 33	21. 33	17. 38
19	8. 14. 22	1. 31	8. 19. 59	1. 33	21. 33	17. 17
25	8. 14. 33	1. 31	8. 20. 3	1. 34	21. 32	16. 55

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D.M S.
1	Th.	1. 19. 17. 57	1. 25. 22. 33	1. 12. 3 N	1.43.26 N
2	F.	2. 1. 31. 4	2. 7. 44. 5	2. 13. 58	2.43.18
3	Sa.	2. 14. 2. 15	2. 20. 26. 10	3. 11. 3	3.36.51
4	*Su.*	2. 26. 56. 22	3. 3. 33. 22	4. 0. 18	4.20.54
5	M.	3. 10. 17. 27	3. 17. 8. 57	4. 38. 19	4.52. 4
6	Tu.	3. 24. 7. 56	4. 1. 14. 18	5. 1. 49	5. 7. 4
7	W.	4. 8. 27. 48	4. 15. 47. 58	5. 7. 34	5. 3. 4
8	Th.	4. 23. 13. 59	5. 0. 44. 56	4. 53. 27	4.38.41
9	F.	5. 8. 19. 40	5. 15. 57. 1	4. 18. 53	3.54.23
10	Sa.	5. 23. 35. 31	6. 1. 13. 45	3. 25. 34	2.53. 1
11	*Su.*	6. 8. 50. 29	6. 16. 24. 24	2. 17. 34	1.3[illegible].45
12	M.	6. 23. 54. 23	7. 1. 19. 33	1. 0. 32 N	0.20.35 N
13	Tu.	7. 8. 39. 7	7. 15. 52. 42	0. 19. 13 S	0.58.12 S
14	W.	7. 22. 59. 52	8. 0. 0. 29	1. 35. 43	2.11.12
15	Th.	8. 6. 54. 35	8. 13. 42. 21	2. 44. 14	3.14.26
16	F.	8. 20. 23. 55	8. 26. 59. 43	3. 41. 29	4. 5.10
17	Sa.	9. 3. 29. 57	9. 9. 55. 11	4. 25. 20	4.41.54
18	*Su.*	9. 16. 15. 43	9. 22. 32. 9	4. 54. 47	5. 3.58
19	M.	9. 28. 44. 45	10. 4. 54. 3	5. 9. 26	5.11.20
20	Tu.	10. 11. 0. 23	10. 17. 4. 10	5. 9. 36	5. 4.30
21	W.	10. 23. 5. 44	10. 29. 5. 27	4. 55. 58	4.44.14
22	Th.	11. 5. 3. 35	11. 11. 0. 28	4. 29. 27	4.11.45
23	F.	11. 16. 56. 15	11. 22. 51. 19	3. 51. 22	3.28.32
24	Sa.	11. 28. 45. 48	0. 4. 40. 0	3. 3. 28	2.36.25
25	*Su.*	0. 10. 34. 6	0. 16. 28. 23	2. 7. 40	1.37.30
26	M.	0. 22. 23. 2	0. 28. 18. 26	1. 6. 12	0.34. 5 S
27	Tu.	1. 4. 14. 49	1. 10. 12. 29	0. 1. 30 S	0.31.17 N
28	W.	1. 16. 11. 59	1. 22. 13. 32	1. 3. 53 N	1.36. 0
29	Th.	1. 28. 17. 34	2. 4. 24. 36	2. 7. 15	2.37.20
30	F.	2. 10. 35. 4	2. 16. 49. 25	3. 5. 54	3.32.31
31	Sa.	2. 23. 8. 12	2. 29. 31. 50	3. 56. 53	4.18.38

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Passage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declinat. at Noon.	☽'s Declin. at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	Th.	8	4. 24	46. 30	52. 35	18. 44 N	20. 48 N
2	F.	9	5. 12	58. 54	65. 28	22. 41	24. 19
3	Sa.	10	6. 5	72. 16	79. 18	25. 41	26. 44
4	*Su.*	11	7. 1	86. 34	94. 1	27. 27	27. 46
5	M.	12	8. 0	101. 36	109. 17	27. 42	27. 12
6	Tu.	13	9. 0	117. 1	124. 43	26. 16	24. 54
7	W.	14	9. 59	132. 21	139. 52	23. 8	20. 56
8	Th.	15	10. 56	147. 16	154. 31	18. 24	15. 34
9	F.	16	11. 51	161. 37	168. 36	12. 27	9. 9
10	Sa.	17	12. 44	175. 29	182. 17	5. 42 N	2. 9 N
11	*Su.*	18	13. 36	189. 2	195. 45	1. 24 S	4. 56 S
12	M.	19	14. 29	202. 30	209. 18	8. 21	11. 38
13	Tu.	20	15. 23	216. 10	223. 7	14. 43	17. 32
14	W.	21	16. 18	230. 10	237. 19	20. 5	22. 19
15	Th.	22	17. 15	244. 34	251. 53	24. 11	25. 41
16	F.	23	18. 11	259. 15	266. 37	26. 48	27. 31
17	Sa.	24	19. 8	273. 57	281. 11	27. 51	27. 47
18	*Su.*	25	20. 1	288. 18	295. 16	27. 21	26. 35
19	M.	26	20. 52	302. 3	308. 38	25. 29	24. 5
20	Tu.	27	21. 39	315. 0	321. 10	22. 27	20. 34
21	W.	28	22. 22	327. 9	332. 57	18. 30	16. 14
22	Th.	29	23. 3	338. 35	344. 6	13. 51	11. 20
23	F.	30	23. 44	349. 30	354. 49	8. 43	6. 2
24	Sa.	1	☌	0. 5	5. 19	3. 18 S	0. 32 S
25	*Su.*	2	0. 23	10. 33	15. 48	2. 14 N	4. 59 N
26	M.	3	1. 3	21. 7	26. 30	7. 42	10. 21
27	Tu.	4	1. 45	32. 0	37. 37	12. 56	15. 24
28	W.	5	2. 28	43. 24	49. 22	17. 43	19. 54
29	Th.	6	3. 15	55. 32	61. 55	21. 52	23. 38
30	F.	7	4. 7	68. 30	75. 18	25. 8	26. 20
31	Sa.	8	5. 0	82. 18	89. 28	27. 14	27. 47

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon.	Semid^{r}. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	Th.	15. 0	15. 4	55. 3	55. 19	5145	5124
2	F.	15. 10	15. 16	55. 39	56. 0	5098	5071
3	Sa.	15. 22	15. 29	56. 23	56. 48	5041	5009
4	*Su.*	15. 36	15. 44	57. 15	57. 43	4975	4940
5	M.	15. 51	15. 59	58. 12	58. 41	4903	4867
6	Tu.	16. 7	16. 15	59. 10	59. 39	4832	4797
7	W.	16. 22	16. 29	60. 5	60. 29	4765	4736
8	Th.	16. 35	16. 40	60. 51	61. 8	4710	4690
9	F.	16. 43	16. 45	61. 22	61. 30	4673	4664
10	Sa.	16. 47	16. 46	61. 34	61. 33	4659	4660
11	*Su.*	16. 44	16. 41	61. 26	61. 15	4669	4682
12	M.	16. 37	16. 32	61. 0	60. 41	4699	4722
13	Tu.	16. 26	16. 19	60. 19	59. 55	4748	4777
14	W.	16. 12	16. 5	59. 28	59. 1	4810	4843
15	Th.	15. 57	15. 50	58. 33	58. 5	4877	4912
16	F.	15. 42	15. 35	57. 38	57. 12	4946	4979
17	Sa.	15. 28	15. 21	56. 47	56. 24	5010	5040
18	*Su.*	15. 16	15. 11	56. 2	55. 43	5068	5093
19	M.	15. 6	15. 2	55. 25	55. 9	5116	5137
20	Tu	14. 58	14. 55	54. 55	54. 43	5155	5171
21	W.	14. 52	14. 49	54. 33	54. 24	5185	5197
22	Th.	14. 47	14. 46	54. 17	54. 12	5206	5213
23	F.	14. 45	14. 45	54. 8	54. 6	5218	5221
24	Sa.	14. 44	14. 44	54. 4	54. 4	5223	5223
25	*Su.*	14. 45	14. 45	54. 6	54. 8	5221	5218
26	M.	14. 46	14. 48	54. 13	54. 18	5211	5205
27	Tu.	14. 50	14. 52	54. 25	54. 33	5195	5185
28	W.	14. 55	14. 58	54. 43	54. 55	5171	5155
29	Th.	15. 1	15. 5	55. 8	55. 23	5138	5119
30	F.	15. 10	15. 15	55. 40	55. 57	5097	5075
31	Sa.	15. 21	15. 27	56. 18	56. 41	5048	5018

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Pollux.	60. 58. 0	59. 26. 56	57. 55. 39	56. 24. 8	54. 52. 25	53. 20. 28	51. 48. 16	50. 15. 49
2		48. 43. 7	47. 10. 10	45. 36. 56	44. 3. 25	42. 29. 38	40. 55. 33	39. 21. 8	37. 46. 25
3		36. 11. 23	34. 36. 1	33. 0. 19	31. 24. 16	29. 47. 52			
3	Regulus.					66. 22. 31	64. 45. 57	63. 8. 59	61. 31. 38
4		59. 53. 53	58. 15. 46	56. 37. 15	54. 58. 21	53. 19. 2	51. 39. 20	49. 59. 13	48. 18. 43
5		46. 37. 48	44. 56. 28	43. 14. 43	41. 32. 35	39. 50. 2	38. 7. 3	36. 23. 42	34. 39. 59
6		32. 55. 54	31. 11. 25	29. 26. 39	27. 41. 36	25. 56. 15	24. 10. 42	22. 25. 1	20. 39. 12
7		18. 53. 16							
7	Spica ♍	72. 36. 13	70. 47. 25	68. 58. 14	67. 8. 38	65. 18. 39	63. 28. 18	61. 37. 36	59. 46. 34
8		57. 55. 11	56. 3. 29	54. 11. 30	52. 19. 15	50. 26. 43	48. 33. 57	46. 40. 58	44. 47. 48
9		42. 54. 25	41. 0. 51	39. 7. 10	37. 13. 23	35. 19. 30	33. 25. 35	31. 31. 40	29. 37. 46
10		27. 43. 53							
10	Antares.	73. 29. 4	71. 34. 25	69. 39. 47	67. 45. 12	65. 50. 38	63. 56. 8	62. 1. 45	60. 7. 28
11		58. 13. 18	56. 19. 18	54. 25. 29	52. 31. 52	50. 38. 26	48. 45. 15	46. 52. 20	44. 59. 41
12		43. 7. 18	41. 15. 13	39. 23. 28	37. 32. 3	35. 40. 57	33. 50. 13	31. 59. 53	30. 9. 56
13		28. 20. 23							

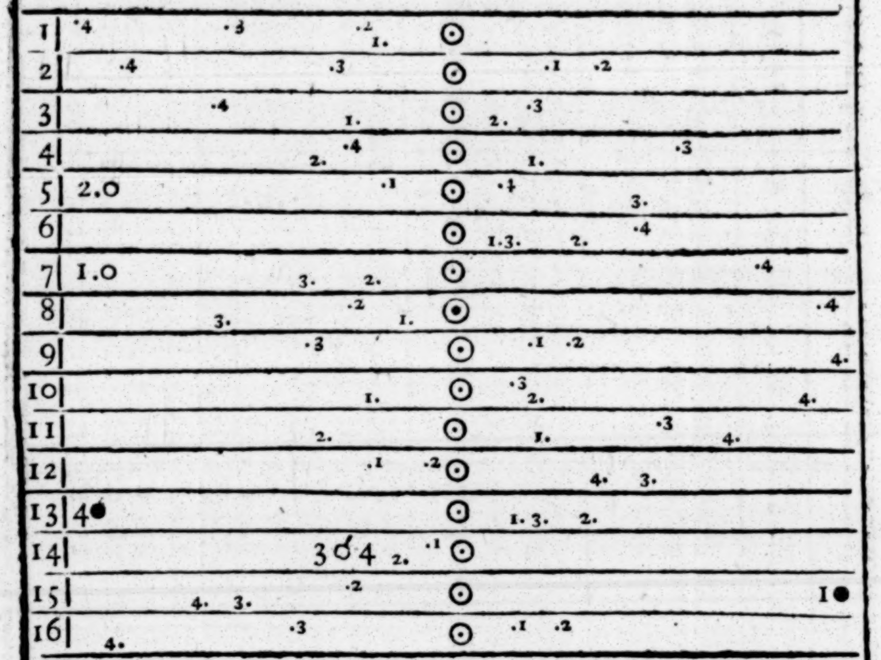
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
13	α Aquilæ.	81. 28. 21	79. 58. 41	78. 29. 35	77. 1. 2	75. 33. 5	74. 5. 44	72. 39. 4	71. 13. 6
14		69. 47. 52	68. 23. 24	66. 59. 46	65. 37. 2	64. 15. 12	62. 54. 17	61. 34. 22	60. 15. 30
15		58. 57. 38							
15	Fomal-haut.	83. 17. 21	81. 38. 53	80. 0. 52	78. 23. 19	76. 46. 12	75. 9. 33	73. 33. 21	71. 57. 36
16		70. 22. 19	68. 47. 29	67. 13. 8	65. 39. 13	64. 5. 47			
14	The Sun.	121. 18. 7	119. 39. 41	118. 1. 41	116. 24. 6	114. 46. 57	113. 10. 13	111. 33. 54	109. 58. 0
15		108. 22. 31	106. 47. 27	105. 12. 48	103. 38. 33	102. 4. 42	100. 31. 16	98. 58. 14	97. 25. 36
16		95. 53. 22	94. 21. 30	92. 50. 1	91. 18. 53	89. 48. 9	88. 17. 47	86. 47. 46	85. 18. 5
17		83. 48. 46	82. 19. 46	80. 51. 5	79. 22. 43	77. 54. 40	76. 26. 57	74. 59. 31	73. 32. 23
18		72. 5. 32	70. 38. 56	69. 12. 35	67. 46. 30	66. 20. 40	64. 55. 6	63. 29. 46	62. 4. 40
19		60. 39. 47	59. 15. 6	57. 50. 37	56. 26. 21	55. 2. 16	53. 38. 22	52. 14. 39	50. 51. 7
20		49. 27. 45	48. 4. 32	46. 41. 29	45. 18. 34	43. 55. 47	42. 33. 9	41. 10. 39	39. 48. 17
26	Pollux.					82. 1. 0	80. 31. 40	79. 2. 17	77. 32. 49
27		76. 3. 17	74. 33. 40	73. 3. 58	71. 34. 10	70. 4. 16	68. 34. 15	67. 4. 7	66. 33. 52
28		64. 3. 30	62. 33. 1	61. 2. 24	59. 31. 40	58. 0. 47	56. 29. 47	54. 58. 37	53. 27. 18
29		51. 55. 49	50. 24. 10	48. 52. 21	47. 20. 20	45. 48. 8			
29	Regulus.					82. 22. 9	80. 49. 58	79. 17. 34	77. 44. 59
30		76. 12. 11	74. 39. 10	73. 5. 56	71. 32. 27	69. 58. 44	68. 24. 46	66. 50. 32	65. 16. 2
31		63. 41. 17	62. 6. 16	60. 30. 59	58. 55. 24	57. 19. 33	55. 43. 27	54. 7. 0	52. 30. 13
A. 1		50. 53. 5							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	The Sun.	67. 57. 36	69. 20. 57	70. 44. 31	72. 8. 19	73. 32. 19	74. 56. 34	76. 21. 3	77. 45. 49
2		79. 10. 50	80. 36. 7	82. 1. 41	83. 27. 32	84. 53. 41	86. 20. 8	87. 46. 55	89. 14. 1
3		90. 41. 26	92. 9. 12	93. 37. 19	95. 5. 48	96. 34. 38	98. 3. 50	99. 33. 25	101. 3. 24
4		102. 33. 45	104. 4. 31	105. 35. 42	107. 7. 18	108. 39. 17	110. 11. 42	111. 44. 33	113. 17. 49
5		114. 51. 30	116. 25. 38	118. 0. 12	119. 35. 14	121. 10. 43			
3	α Arietis.	39. 44. 10	41. 16. 1	42. 48. 26	44. 21. 25	45. 54. 58	47. 29. 3	49. 3. 40	50. 38. 48
4		52. 14. 27	53. 50. 36	55. 27. 13	57. 4. 21	58. 41. 58	60. 20. 4	61. 58. 39	63. 37. 42
5		65. 17. 14							
5	Aldebaran.	35. 0. 44	36. 39. 38	38. 19. 11	39. 59. 22	41. 40. 11	43. 21. 37	45. 3. 37	46. 46. 12
6		48. 29. 21	50. 13. 2	51. 57. 13	53. 41. 57	55. 27. 11	57. 12. 56	58. 59. 9	60. 45. 51
7		62. 33. 2	64. 20. 41	66. 8. 46	67. 57. 17	69. 46. 13	71. 35. 33	73. 25. 16	75. 15. 20
8		77. 5. 47							
8	Pollux.	32. 54. 18	34. 46. 6	36. 38. 12	38. 30. 37	40. 23. 20	42. 16. 19	44. 9. 32	46. 3. 0
9		47. 56. 41	49. 50. 35	51. 44. 38	53. 38. 51	55. 33. 12	57. 27. 38	59. 22. 9	61. 16. 44
10		63. 11. 23							

Days.	Stars Names.	Noon. D. M. S.	3 Hours. D. M. S.	6 Hours. D. M. S.	9 Hours. D. M. S.	12 Hours. D. M. S.	15 Hours. D. M. S.	18 Hours. D. M. S.	21 Hours. D. M. S.
10	Regulus.	26. 56. 42	28. 49. 56	30. 43. 16	32. 36. 43	34. 30. 16	36. 23. 52	38. 17. 25	40. 10. 58
11		42. 4. 28	43. 57. 51	45. 51. 6	47. 44. 11	49. 37. 8	51. 29. 52	53. 22. 22	55. 14. 38
12		57. 6. 40	58. 58. 26	60. 49. 53	62. 41. 3	64. 31. 54	66. 22. 24	68. 12. 33	70. 2. 20
13		71. 51. 47	73. 40. 51	75. 29. 33	77. 17. 50	79. 5. 45			
13	Spica ♍					25. 5. 59	26. 52. 52	28. 39. 25	30. 25. 38
14		32. 11. 30	33. 57. 1	35. 42. 9	37. 26. 54	39. 11. 17	40. 55. 15	42. 38. 49	44. 22. 0
15		46. 4. 47	47. 47. 10	49. 29. 9	51. 10. 45	52. 51. 56	54. 32. 42	56. 13. 6	57. 53. 5
16		59. 32. 42	61. 11. 56	62. 50. 49	64. 29. 19	66. 7. 27	67. 45. 13	69. 22. 38	70. 59. 42
17		72. 36. 24							
17	Antares.	26. 42. 26	28. 18. 48	29. 54. 50	31. 30. 35	33. 6. 1	34. 41. 9	36. 16. 0	37. 50. 35
18		39. 24. 53	40. 58. 56	42. 32. 44	44. 6. 17	45. 39. 35	47. 12. 37	48. 45. 26	50. 18. 2
19		51. 50. 24	53. 22. 35	54. 54. 34	56. 26. 21	57. 57. 57	59. 29. 21	61. 0. 35	62. 31. 38
20		64. 2. 32	65. 33. 18	67. 3. 55	68. 34. 23	70. 4. 42	71. 34. 54	73. 4. 58	74. 34. 56
21		76. 4. 47	77. 34. 32	79. 4. 12	80. 33. 46	82. 3. 15	83. 32. 38	85. 1. 56	86. 31. 10
22		88. 0. 20	89. 29. 26	90. 58. 30	92. 27. 30	93. 56. 28			
28	The Sun.		39. 24. 45	40. 47. 50	42. 11. 3	43. 34. 25	44. 57. 56	46. 21. 37	47. 45. 28
29		49. 9. 29	50. 33. 41	51. 58. 5	53. 22. 40	54. 47. 27	56. 12. 26	57. 37. 37	59. 3. 2
30		60. 28. 39	61. 54. 30	63. 20. 35	64. 46. 55	66. 13. 30	67. 40. 21	69. 7. 27	70. 34. 50
31		72. 2. 29	73. 30. 25	74. 58. 38	76. 27. 10	77. 56. 0	79. 25. 9	80. 54. 37	82. 24. 26
A. 1		83. 54. 34							

Configurations of the SATELLITES of JUPITER at 4 o' Clock in the Morning.



Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	*Su.*	*5th Sunday in Lent.*
2	M.	
3	Tu.	Richard, Bp. of Chich.
4	W.	St. Ambroſe.
5	Th.	
6	F.	Camb. Term ends.
7	Sa.	Oxf. Term ends.
8	*Su.*	*6th Su. in Lent. Palm Su.*
9	M.	
10	Tu.	
11	W.	
12	Th.	
13	F.	*Good Friday.*
14	Sa.	
15	*Su.*	*Eaſter-Day.*
16	M.	*Eaſter-Monday.*
17	Tu.	*Eaſter-Tueſday.*
18	W.	
19	Th.	Alphege.
20	F.	
21	Sa.	
22	*Su.*	*1ſt Su. aft. Eaſt. Low-Su.*
23	M.	St. George.
24	Tu.	
25	W.	*St. Mark. Prs. Mary born.*
26	Th.	[Ox. and Cam. T. beg.
27	F.	
28	Sa.	
29	*Su.*	*2d Sunday after Eaſter.*
30	M.	From Eaſter in 15 days, [1 ret.

Phaſes of the Moon.

	D. H. M.
Firſt Quarter —	1. 12. 3
Full Moon —	8. 3. 41
Laſt Quarter —	15. 1. 16
New Moon —	23. 5. 21
Firſt Quarter —	30. 21. 27

Other Phenomena.

D.
1. ☾ ι ♊ 17^{h}. 54′.
2. ☾ 2 ad ⫰ ♋ 12^{h}. 14′.
4. ☾ *n* ♌ 12^{h}. 55′.
7. ☾ γ ♍ 8^{h}. 41′.
☾ θ ♍ 21^{h}. 25′.
9. ☾ λ ♍ 3^{h}. 8′.
☾ α ♎ 16^{h}. 13′.
10. ☾ 1 ad ι ♎ 1^{h}. 49′.
☾ ♂ ♏ 20^{h}. 54′.
13. ☾ φ ♐ 14^{h}. 21′.
☾ τ ♐ 22^{h}. 52′.
16. ☾ ε ♑ 18^{h}. 27′.
17. ☿ Stationary.
18. ☾ 1 ad ⫰ ♒ 22^{h}. 44′.
☾ 2 ad ⫰ ♒ 23^{h}. 37′.
☾ 3 ad ⫰ ♒ 23^{h}. 46′.
19. ☉ enters ♉ at 6^{h}. 17′.
21. ☾ ☿ 1^{h}. 19′.
22. ☾ ♀ 5^{h}. 31′.
23. ☉ eclipſed, partly viſible.
29. ☾ ι ♊ 0^{h}. 4′.
☾ 2 ad ⫰ ♋ 18^{h}. 42′.

APRIL 1781.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Afc. in Time.	Sun's Declin. North.	Equat. of Time. Add.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	*Su.*	0. 12. 7. 27	0. 44. 35,4	4. 47. 55	3. 48,4	18,3
2	M.	0. 13. 6. 28	0. 48. 13,5	5. 10. 56	3. 30,1	18,2
3	Tu.	0. 14. 5. 28	0. 51. 51,9	5. 33. 51	3. 11,9	18,0
4	W.	0. 15. 4. 25	0. 55. 30,4	5. 56. 41	2. 53,9	17,8
5	Th.	0. 16. 3. 19	0. 59. 9,0	6. 19. 26	2. 36,1	17,7
6	F.	0. 17. 2. 11	1. 2. 47,8	6. 42. 3	2. 18,4	17,5
7	Sa.	0. 18. 1. 1	1. 6. 26,9	7. 4. 33	2. 0,9	17,3
8	*Su.*	0. 18. 59. 49	1. 10. 6,1	7. 26. 57	1. 43,6	17,0
9	M.	0. 19. 58. 36	1. 13. 45,7	7. 49. 12	1. 26,6	16,8
10	Tu.	0. 20. 57. 20	1. 17. 25,4	8. 11. 20	1. 9,8	16,5
11	W.	0. 21. 56. 2	1. 21. 5,4	8. 33. 19	0. 53,3	16,1
12	Th.	0. 22. 54. 42	1. 24. 45,8	8. 55. 11	0. 37,2	15,7
13	F.	0. 23. 53. 21	1. 28. 26,5	9. 16. 53	0. 21,5	15,4
14	Sa.	0. 24. 51. 58	1. 32. 7,6	9. 38. 27	0. 6,1	15,2
15	*Su.*	0. 25. 50. 34	1. 35. 49,0	9. 59. 51	Sub. 9,1	14,8
16	M.	0. 26. 49. 8	1. 39. 30,8	10. 21. 6	0. 23,9	14,3
17	Tu.	0. 27. 47. 41	1. 43. 13,1	10. 42. 10	0. 38,2	13,8
18	W.	0. 28. 46. 12	1. 46. 55,8	11. 3. 4	0. 52,0	13,4
19	Th.	0. 29. 44. 41	1. 50. 38,8	11. 23. 47	1. 5,4	13,1
20	F.	1. 0. 43. 9	1. 54. 22,2	11. 44. 19	1. 18,5	12,6
21	Sa.	1. 1. 41. 35	1. 58. 6,2	12. 4. 39	1. 31,1	12,1
22	*Su.*	1. 2. 39. 59	2. 1. 50,6	12. 24. 48	1. 43,2	11,7
23	M.	1. 3. 38. 22	2. 5. 35,4	12. 44. 45	1. 54,9	11,2
24	Tu.	1. 4. 36. 43	2. 9. 20,8	13. 4. 29	2. 6,1	10,7
25	W.	1. 5. 35. 2	2. 13. 6,6	13. 24. 0	2. 16,8	10,2
26	Th.	1. 6. 33. 19	2. 16. 52,9	13. 43. 18	2. 27,0	9,7
27	F.	1. 7. 31. 34	2. 20. 39,7	14. 2. 23	2. 36,7	9,2
28	Sa.	1. 8. 29. 47	2. 24. 27,0	14. 21. 13	2. 45,9	8,8
29	*Su.*	1. 9. 27. 58	2. 28. 14,8	14. 39. 50	2. 54,7	8,3
30	M.	1. 10. 26. 7	2. 32. 3,0	14. 58. 12	3. 3,0	

Days.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 2,2	1. 4,4	2. 27,6	0,000248	1. 5. 54
7	16. 0,5	1. 4,5	2. 27,1	0,000978	1. 5. 35
13	15. 59,0	1. 4,8	2. 26,5	0,001724	1. 5. 16
19	15. 57,5	1. 5,1	2. 26,1	0,002456	1. 4. 57
25	15. 55,9	1. 5,5	2. 25,6	0,003147	1. 4. 38

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite. Immerſions.		II. Satellite. Immerſions.		III. Satellite.		
Days	H. M. S.	Days	H. M. S.	Days	H. M. S.	
1	5. 32. 32	3	16. 59. 29	3	8. 18. 0	I.
3	0. 1. 30	7	6. 17. 9	3	9. 54. 30	E.
4	18. 30. 28	10	19. 34. 46	10	12*17. 51	I.
6	12*59. 26	14	8. 52. 19	10	13*54. 45	E.
8	7. 28. 23	17	22. 9. 49	17	16. 17. 33	I.
10	1. 57. 22	21	11*27. 12	17	17. 55. 6	E.
11	20. 26. 17	25	0. 44. 37	24	20. 16. 59	I.
13	14*55. 15	28	14* 1. 55	24	21. 55. 15	E.
15	9. 24. 8					
17	3. 53. 6					
18	22. 21. 58					
20	16. 50. 52					
22	11*19. 43					
24	5. 48. 36					
26	0. 17. 23					
27	18. 46. 14					
29	13*15. 2					

IV. Satellite.		Conj.
6	19. 30	Inf.
15	1. 46	Sup.
23	10*20	Inf.

APRIL 1781. IV.

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Paſſage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
MERCURY. Inf. ☌ 3^{d}. 0$^{h}\frac{1}{4}$.						
1	6. 6. 50	4. 25 N	0. 15. 41	2. 57 N	8. 55 N	0. 9
4	6. 17. 30	3. 20	0. 13. 21	2. 22	7. 27	23. 44
7	6. 27. 26	2. 13	0. 11. 3	1. 38	5. 53	23. 26
10	7. 6. 47	1. 6 N	0. 9. 8	0. 49 N	4. 23	23. 10
13	7. 15. 41	0. 0	0. 7. 50	0. 0	3. 6	22. 57
16	7. 24. 16	1. 3 S	0. 7. 17	0. 45 S	2. 12	22. 47
19	8. 2. 38	2. 3	0. 7. 30	1. 26	1. 40	22. 38
22	8. 10. 54	2. 59	0. 8. 27	1. 58	1. 32	22. 31
25	8. 19. 8	3. 52	0. 10. 2	2. 25	1. 45	22. 28
28	8. 27. 27	4. 40	0. 12. 11	2. 45	2. 17	22. 25
30	9. 3. 4	5. 9	0. 13. 56	2. 54	2. 50	22. 24
VENUS.						
1	11. 3. 8	3. 19 S	11. 25. 51	1. 29 S	3. 1 S	23. 4
7	11. 12. 39	3. 23	0. 3. 15	1. 30	0. 6 S	23. 9
13	11. 22. 10	3. 21	0. 10. 39	1. 28	2. 52 N	23. 14
19	0. 1. 42	3. 14	0. 18. 2	1. 24	5. 47	23. 19
25	0. 11. 15	3. 1	0. 25. 26	1. 19	8. 38	23. 24
MARS.						
1	7. 23. 5	0. 10 S	9. 3. 14	0. 15 S	23. 41 S	17. 29
7	7. 26. 11	0. 16	9. 6. 14	0. 25	23. 45	17. 20
13	7. 29. 19	0. 22	9. 9. 7	0. 36	23. 45	17. 11
19	8. 2. 30	0. 28	9. 11. 51	0. 49	23. 45	17. 1
25	8. 5. 42	0. 34	9. 14. 26	1. 3	23. 44	16. 50
JUPITER.						
1	7. 19. 23	1. 0 N	7. 26. 54	1. 10 N	18. 21 S	14. 53
7	7. 19. 51	1. 0	7. 26. 30	1. 10	18. 16	14. 30
13	7. 20. 19	0. 59	7. 26. 0	1. 11	18. 8	14. 6
19	7. 20. 47	0. 59	7. 25. 25	1. 11	17. 59	13. 41
25	7. 21. 15	0. 58	7. 24. 46	1. 11	17. 50	13. 16
SATURN.						
1	8. 14. 46	1. 31 N	8. 20. 3	1. 34 N	21. 32 S	16. 31
7	8. 14. 57	1. 30	8. 20. 0	1. 35	21. 31	16. 9
13	8. 15. 7	1. 30	8. 19. 52	1. 35	21. 30	15. 46
19	8. 15. 18	1. 29	8. 19. 42	1. 36	21. 28	15. 23
25	8. 15. 29	1. 29	8. 19. 29	1. 36	21. 27	14. 59

APRIL 1781.

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D.M.S.
1	*Su.*	3. 6. 0. 48	3. 12. 35. 28	4. 37. 25 N	4.52.51 N
2	M.	3. 19. 16. 16	3. 26. 3. 25	5. 4. 34	5.12.16
3	Tu.	4. 2. 57. 9	4. 9. 57. 27	5. 15. 37	5.14.22
4	W.	4. 17. 4. 18	4. 24. 17. 26	5. 8. 19	4.57.20
5	Th.	5. 1. 36. 26	5. 9. 0. 44	4. 41. 24	4.20.36
6	F.	5. 16. 29. 32	5. 24. 1. 55	3. 55. 8	3.25.25
7	Sa.	6. 1. 36. 48	6. 9. 12. 57	2. 51. 54	2.15.12
8	*Su.*	6. 16. 49. 7	6. 24. 24. 10	1. 36. 5	0.55.20 N
9	M.	7. 1. 56. 48	7. 9. 25. 51	0. 13. 48 N	0.27.40 S
10	Tu.	7. 16. 50. 27	7. 24. 9. 43	1. 8. 16 S	1.47.16
11	W.	8. 1. 23. 2	8. 8. 29. 56	2. 24. 0	2.57.57
12	Th.	8. 15. 30. 9	8. 22. 23. 34	3. 28. 41	3.55.52
13	F.	8. 29. 10. 13	9. 5. 50. 17	4. 19. 16	4.38.46
14	Sa.	9. 12. 24. 1	9. 18. 51. 47	4. 54. 16	5. 5.47
15	*Su.*	9. 25. 13. 58	10. 1. 31. 7	5. 13. 20	5.17. 1
16	M.	10. 7. 43. 40	10. 13. 52. 7	5. 16. 55	5.13.13
17	Tu.	10. 19. 57. 2	10. 25. 58. 55	5. 6. 0	4.55.29
18	W.	11. 1. 58. 18	11. 7. 55. 39	4. 41. 47	4.25. 7
19	Th.	11. 13. 51. 28	11. 19. 46. 13	4. 5. 39	3.43.38
20	F.	11. 25. 40. 17	0. 1. 34. 6	3. 19. 16	2.52.47
21	Sa.	0. 7. 28. 1	0. 13. 22. 21	2. 24. 27	1.54.31
22	*Su.*	0. 19. 17. 27	0. 25. 13. 35	1. 23. 18	0.51. 3 S
23	M.	1. 1. 11. 1	1. 7. 10. 1	0. 18. 8 S	0.15. 7 N
24	Tu.	1. 13. 10. 49	1. 19. 13. 39	0. 48. 23 N	1.21.17
25	W.	1. 25. 18. 45	2. 1. 26. 22	1. 53. 27	2.24.32
26	Th.	2. 7. 36. 43	2. 13. 50. 5	2. 54. 9	3.21.57
27	F.	2. 20. 6. 39	2. 26. 26. 49	3. 47. 32	4.10.37
28	Sa.	3. 2. 50. 40	3. 9. 18. 34	4. 30. 46	4.47.43
29	*Su.*	3. 15. 50. 41	3. 22. 27. 18	5. 1. 7	5.10.44
30	M.	3. 29. 8. 33	4. 5. 54. 38	5. 16. 15	5.17.29

APRIL. 1781. VI.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid. H. M.	☽'s Right Aſcen. at Noon. D. M.	☽'s Right Aſc. at Midn. D. M.	☽'s Declination at Noon. D. M.	☽'s Declination at Midn. D. M.
1	*Su.*	9	5. 57	96. 48	104. 11	27. 57 N	27. 44 N
2	M.	10	6. 55	111. 40	119. 9	27. 6	26. 4
3	Tu.	11	7. 52	126. 35	133. 56	24. 38	22. 49
4	W.	12	8. 49	141. 11	148. 20	20. 38	18. 7
5	Th.	13	9. 43	155. 22	162. 17	15. 18	12. 14
6	F.	14	10. 36	169. 7	175. 53	8. 57	5. 31 N
7	Sa.	15	11. 28	182. 37	189. 21	1. 59 N	1. 35 S
8	*Su.*	16	12. 21	196. 7	202. 56	5. 8 S	8. 37
9	M.	17	13. 16	209. 51	216. 52	11. 57	15. 6
10	Tu.	18	14. 11	224. 2	231. 19	17. 59	20. 35
11	W.	19	15. 10	238. 44	246. 15	22. 49	24. 41
12	Th.	20	16. 9	253. 50	261. 28	26. 8	27. 10
13	F.	21	17. 8	269. 4	276. 36	27. 47	27. 58
14	Sa.	22	18. 4	284. 0	291. 13	27. 46	27. 11
15	*Su.*	23	18. 56	298. 15	305. 3	26. 15	25. 0
16	M.	24	19. 44	311. 37	317. 57	23. 27	21. 41
17	Tu.	25	20. 30	324. 4	329. 59	19. 41	17. 30
18	W.	26	21. 12	335. 43	341. 17	15. 10	12. 42
19	Th.	27	21. 51	346. 44	352. 5	10. 8	7. 29
20	F.	28	22. 31	357. 21	2. 35	4. 46 S	2. 1 S
21	Sa.	29	23. 10	7. 48	13. 3	0. 46 N	3. 32 N
22	*Su.*	30	23. 51	18. 20	23. 41	6. 17	8. 59
23	M.	1	☌	29. 9	34. 44	11. 37	14. 9
24	Tu.	2	0. 33	40. 28	46. 22	16. 35	18. 51
25	W.	3	1. 19	52. 28	58. 47	20. 57	22. 50
26	Th.	4	2. 9	65. 18	72. 1	24. 28	25. 50
27	F.	5	3. 1	78. 55	86. 0	26. 53	27. 36
28	Sa.	6	3. 57	93. 13	100. 31	27. 57	27. 55
29	*Su.*	7	4. 54	107. 51	115. 12	27. 31	26. 42
30	M.	8	5. 51	122. 30	129. 43	25. 30	23. 56

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon. M. S.	Semid^{r}. ☽ at Midnight. M. S.	Hor. Par. ☽ at Noon. M. S.	Hor. Par. ☽ at Midnight. M. S.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
1	*Su.*	15. 33	15. 40	57. 5	57. 29	4987	4957
2	M.	15. 47	15. 54	57. 56	58. 22	4923	4891
3	Tu.	16. 2	16. 9	58. 49	59. 17	4858	4823
4	W.	16. 16	16. 23	59. 42	60. 6	4793	4764
5	Th.	16. 29	16. 34	60. 28	60. 48	4737	4714
6	F.	16. 38	16. 42	61. 5	61. 17	4693	4679
7	Sa.	16. 44	16. 45	61. 26	61. 30	4669	4664
8	*Su.*	16. 45	16. 43	61. 29	61. 22	4665	4673
9	M.	16. 40	16. 36	61. 11	60. 56	4686	4704
10	Tu.	16. 31	16. 25	60. 36	60. 14	4728	4754
11	W.	16. 18	16. 10	59. 48	59. 21	4786	4819
12	Th.	16. 2	15. 55	58. 52	58. 23	4854	4890
13	F.	15. 47	15. 39	57. 55	57. 26	4924	4961
14	Sa.	15. 31	15. 24	56. 58	56. 32	4996	5029
15	*Su.*	15. 18	15. 12	56. 8	55. 45	5060	5090
16	M.	15. 6	15. 1	55. 25	55. 7	5116	5140
17	Tu.	14. 57	14. 54	54. 52	54. 40	5159	5175
18	W.	14. 51	14. 49	54. 30	54. 22	5189	5199
19	Th.	14. 47	14. 46	54. 15	54. 11	5209	5214
20	F.	14. 45	14. 45	54. 9	54. 8	5217	5218
21	Sa.	14. 45	14. 46	54. 9	54. 11	5217	5214
22	*Su.*	14. 47	14. 48	54. 15	54. 20	5209	5202
23	M.	14. 50	14. 52	54. 27	54. 34	5193	5183
24	Tu.	14. 55	14. 57	54. 43	54. 53	5171	5158
25	W.	15. 0	15. 4	55. 4	55. 16	5144	5128
26	Th.	15. 7	15. 11	55. 29	55. 43	5111	5093
27	F.	15. 15	15. 19	55. 58	56. 14	5073	5053
28	Sa.	15. 24	15. 29	56. 32	56. 50	5029	5006
29	*Su.*	15. 34	15. 40	57. 9	57. 30	4983	4956
30	M.	15. 46	15. 52	57. 51	58. 12	4930	4903

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1		50. 53. 5	49. 15. 42	47. 38. 0	45. 59. 58	44. 21. 36	42. 42. 55	41. 3. 54	39. 24. 34
2	Regulus.	37. 44. 55	36. 4. 56	34. 24. 38	32. 44. 3	31. 3. 10	29. 22. 0	27. 40. 34	25. 58. 53
3		24. 16. 56							
3		78. 5. 32	76. 21. 42	74. 37. 28	72. 52. 48	71. 7. 44	69. 22. 15	67. 36. 22	65. 50. 5
4		64. 3. 24	62. 16. 19	60. 28. 51	58. 41. 0	56. 52. 46	55. 4. 9	53. 15. 10	51. 25. 51
5	Spica ♍	49. 36. 9	47. 46. 7	45. 55. 46	44. 5. 7	42. 14. 10	40. 22. 55	38. 31. 25	36. 39. 41
6		34. 47. 43	32. 55. 30	31. 3. 10	29. 10. 42	27. 18. 6	25. 25. 26	23. 32. 47	21. 40. 7
7		19. 47. 28							
7		65. 27. 50	63. 33. 42	61. 39. 31	59. 45. 15	57. 50. 56	55. 56. 38	54. 2. 17	52. 7. 59
8	Antares.	50. 13. 40	48. 19. 25	46. 25. 17	44. 31. 14	42. 37. 18	40. 43. 31	38. 49. 55	36. 56. 31
9		35. 3. 19	33. 10. 21	31. 17. 39	29. 25. 15	27. 33. 7			
9						80. 52. 11	79. 20. 34	77. 49. 26	76. 18. 51
10	α Aquilæ.	74. 48. 46	73. 19. 19	71. 50. 34	70. 22. 32	68. 55. 13	67. 28. 42	66. 3. 5	64. 38. 23
11		63. 14. 38	61. 51. 53	60. 30. 15	59. 9. 47	57. 50. 26			

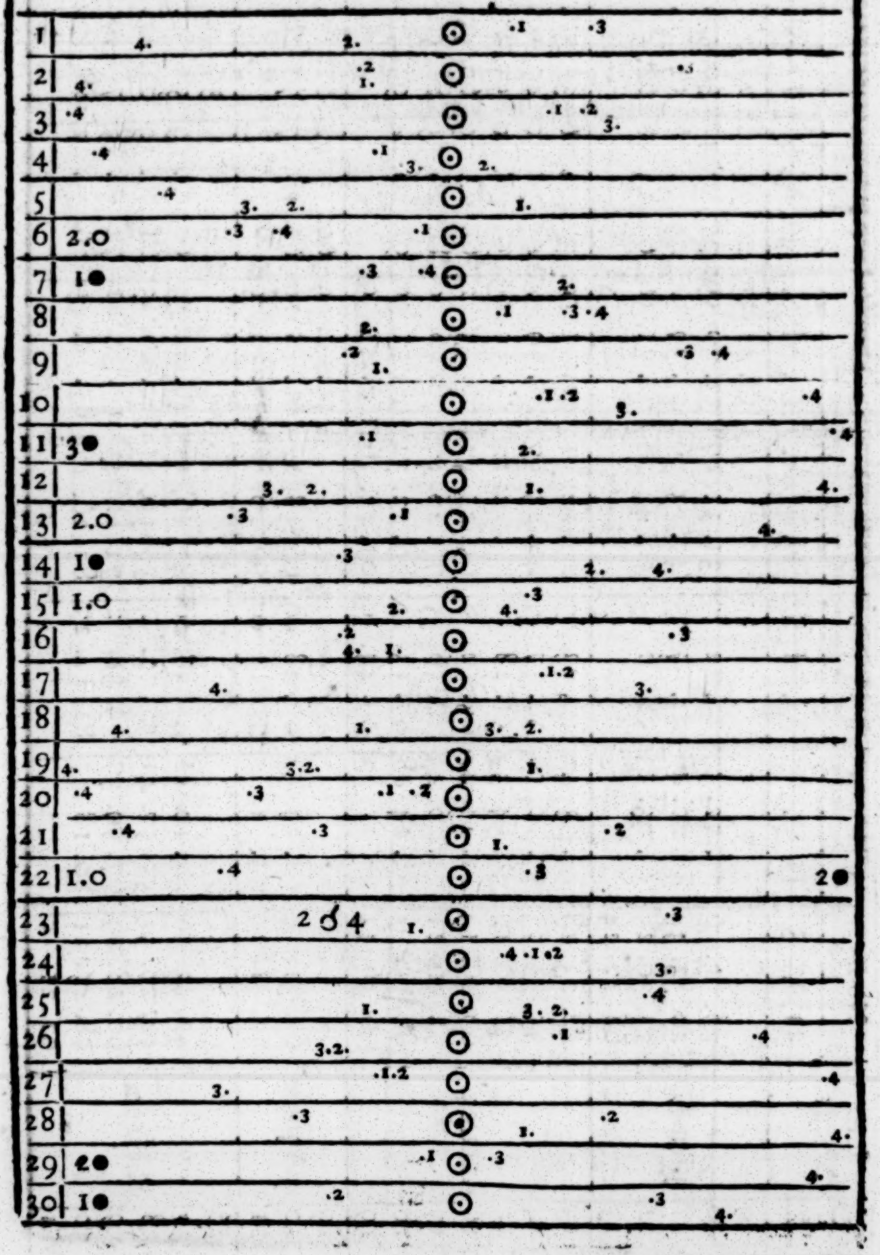
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
11	Fomal-haut.					81. 43. 40	80. 2. 10	78. 21. 13	76. 40. 43
12		75. 0. 44	73. 21. 15	71. 42. 18	70. 3. 50	68. 25. 56	66. 48. 33	65. 11. 44	63. 35. 27
13		61. 59. 44	60. 24. 34	58. 50. 1	57. 16. 3	55. 42. 41	54. 9. 55	52. 37. 48	51. 6. 20
14		49. 35. 32	48. 5. 22	46. 35. 56	45. 7. 15	43. 39. 19	42. 12. 11	40. 45. 55	39. 20. 32
15		37. 56. 0							
12	The Sun.					120. 55. 36	119. 20. 42	117. 46. 14	116. 12. 13
13		114. 38. 38	113. 5. 29	111. 32. 45	110. 0. 27	108. 28. 34	106. 57. 7	105. 26. 4	103. 55. 25
14		102. 25. 10	100. 55. 18	99. 25. 48	97. 56. 41	96. 27. 56	94. 59. 33	93. 31. 31	92. 3. 48
15		90. 36. 27	89. 9. 24	87. 42. 39	86. 16. 13	84. 50. 4	83. 24. 13	81. 58. 38	80. 33. 20
16		79. 8. 17	77. 43. 30	76. 18. 57	74. 54. 37	73. 30. 32	72. 6. 40	70. 42. 58	69. 19. 29
17		67. 56. 11	66. 33. 4	65. 10. 7	63. 47. 19	62. 24. 41	61. 2. 11	59. 39. 49	58. 17. 34
18		56. 55. 27	55. 33. 27	54. 11. 31	52. 49. 42	51. 27. 58	50. 6. 19	48. 44. 43	47. 23. 11
19		46. 1. 43	44. 40. 18	43. 18. 54	41. 57. 33	40. 36. 13			
25	Pollux.	54. 54. 49	53. 22. 55	51. 50. 53	50. 18. 42	48. 46. 22	47. 13. 53	45. 41. 15	44. 8. 27
26		42. 35. 30	41. 2. 23	39. 29. 6	37. 55. 38	36. 22. 1	34. 48. 13	33. 14. 15	31. 40. 6
27		30. 5. 46							
27	Regulus.	66. 42. 6	65. 7. 46	63. 33. 14	61. 58. 31	60. 23. 36	58. 48. 29	57. 13. 10	55. 37. 39
28		54. 1. 56	52. 25. 59	50. 49. 49	49. 13. 26	47. 36. 51	46. 0. 3	44. 23. 3	42. 45. 49
29		41. 8. 23	39. 30. 42	37. 52. 49	36. 14. 43	34. 36. 25	32. 57. 53	31. 19. 11	29. 40. 20
30		28. 1. 18	26. 22. 2	24. 42. 43	23. 3. 22	21. 24. 1	19. 44. 46	18. 5. 40	16. 26. 46
M.1		14. 48. 2							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	The Sun.	83. 54. 34	85. 24. 59	86. 55. 49	88. 26. 59	89. 58. 31	91. 30. 25	93. 2. 41	94. 35. 20
2		96. 8. 21	97. 41. 45	99. 15. 33	100. 49. 44	102. 24. 19	103. 59. 18	105. 34. 43	107. 10. 31
3		108. 46. 44	110. 23. 22	112. 0. 24	113. 37. 50	115. 15. 42	116. 53. 58	118. 32. 39	120. 11. 45
1	Aldeba-ran.					37. 17. 0	38. 53. 35	40. 30. 43	42. 8. 21
2		43. 46. 31	45. 25. 11	47. 4. 21	48. 44. 1	50. 24. 11	52. 4. 49	53. 45. 57	55. 27. 32
3		57. 9. 36	58. 52. 7	60. 35. 5	62. 18. 30	64. 2. 23	65. 46. 43	67. 31. 29	69. 16. 42
4		71. 2. 21							
4	Pollux.	26. 46. 7	28. 33. 14	30. 20. 46	32. 8. 43	33. 57. 4	35. 45. 49	37. 34. 57	39. 24. 27
5		41. 14. 20	43. 4. 35	44. 55. 11	46. 46. 7	48. 37. 24	50. 28. 59	52. 20. 52	54. 13. 2
6		56. 5. 30							
6	Regulus.	19. 59. 5	21. 49. 17	23. 40. 0	25. 31. 12	27. 22. 55	29. 15. 2	31. 7. 27	33. 0. 11
7		34. 53. 13	36. 46. 25	38. 39. 45	40. 33. 14	42. 26. 52	44. 20. 33	46. 14. 17	48. 8. 2
8		50. 1. 49	51. 55. 35	53. 49. 17	55. 42. 55	57. 36. 29	59. 29. 55	61. 23. 11	63. 16. 17
9		65. 9. 13	67. 1. 57	68. 54. 26	70. 46. 40	72. 38. 38			

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
9						18. 41. 55	20. 32. 26	22. 22. 48	24. 13. 2
10		26. 3. 6	27. 52. 59	29. 42. 37	31, 31. 57	33. 20. 59	35. 9. 40	36. 58. 0	38. 45. 58
11	Spica ♍	40. 33. 34	42. 20. 46	44. 7. 33	45. 53. 56	47. 39. 54	49. 25. 26	51. 10. 31	52. 55. 11
12		54. 39. 25	56. 23. 13	58. 6. 33	59. 49. 28	61. 31. 56	63. 13. 58	64. 55. 33	66. 36. 42
13		68. 17. 24							
13		22. 23. 28	24. 3. 40	25. 43. 27	27. 22. 51	29. 1. 50	30. 40. 26	32. 18. 38	33. 56. 27
14		35. 33. 53	37. 10. 56	38. 47. 37	40. 23. 57	41. 59. 54	43. 35. 30	45. 10. 45	46. 45. 41
15		48. 20. 16	49. 54. 33	51. 28. 32	53. 2. 12	54. 35. 35	56. 8. 40	57. 41. 29	59. 14. 2
16	Antares.	60. 46. 19	62. 18. 21	63. 50. 8	65. 21. 42	66. 53. 2	68. 24. 9	69. 55. 5	71. 25. 49
17		72. 56. 21	74. 26. 43	75. 56. 55	77. 26. 57	78. 56. 50	80. 26. 35	81. 56. 12	83. 25. 41
18		84. 55. 3	86. 24. 18	87. 53. 28	89. 22. 32	90. 51. 30	92. 20. 24	93. 49. 14	95. 18. 1
19		96. 46. 43	98. 15. 23	99. 44. 0	101, 12. 36	102. 41. 9			
19						59. 1. 9	60. 7. 54	61. 15. 8	62. 22. 52
20	α Aquilæ.	63. 31. 4	64. 39. 44	65. 48. 49	66. 58. 22	68. 8. 19	69. 18. 37	70. 29. 15	71. 40. 12
21		72. 51. 29	74. 3. 2	75. 14. 50	76. 26. 52	77. 39. 9			
26								39. 49. 1	41. 16. 2
27		42. 43. 16	44. 10. 42	45. 38. 20	47. 6. 11	48. 34. 14	50. 2. 29	51. 30. 57	52. 59. 38
28	The Sun.	54. 28. 32	55. 57. 41	57. 27. 4	58. 56. 41	60. 26. 33	61. 56. 39	63. 27. 0	64. 57. 37
29		66. 28. 29	67. 59. 37	69. 31. 2	71. 2. 43	72. 34. 41	74. 6. 55	75. 39. 28	77. 12. 15
30		78. 45. 21	80. 18. 45	81. 52. 27	83. 26. 27	85. 0. 45	86. 35. 22	88 10. 17	89. 45. 32
M. 1		91. 21. 5							

Configurations of the SATELLITES of JUPITER at 3 o'Clock in the Morning.



MAY 1781.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Tu.	*St. Philip and St. James.*
2	W.	Eaſter Term begins.
3	Th.	Invention of the Croſs.
4	F.	
5	Sa.	
6	*Su.*	*3d S. aft. Eaſt.* John Eva.
7	M.	Eaſt. Ter. 2 ret. [a P. Lat.
8	Tu.	
9	W.	
10	Th.	
11	F.	
12	Sa.	
13	*Su.*	*4th Sunday after Eaſter.*
14	M.	Eaſter Term 3 ret.
15	Tu.	
16	W.	
17	Th.	
18	F.	
19	Sa.	*Q. Char. b.* 1744. Dunſt.
20	*Su.*	*5th S. aft. Eaſt. Rog. Su.*
21	M.	Eaſter Ter. 4 ret.
22	Tu.	*Prs. Elizabeth born* 1770.
23	W.	
24	Th.	*Aſcenſion-day. H. Thurſ.*
25	F.	Eaſter Ter. 5 ret
26	Sa.	Auguſt. 1ſt Abp. of Cant.
27	*Su.*	*Su. aft. Aſcen.* Ven. Bede.
28	M.	Eaſter Term ends.
29	Tu.	*K. Charles* II. *reſtored.*
30	W.	
31	Th.	Oxford Term ends.

Phaſes of the Moon.

	D.H.M.
Full Moon —	7. 12. 18
Laſt Quarter —	14. 16. 22
New Moon —	22. 20. 21
Firſt Quarter —	30. 3. 47

Other Phenomena.

D.
1. ☾ η ♌ 20^{h}. 47′.
4. ☾ γ ♍ 18^{h}. 51′.
5. ☾ θ ♍ 7^{h}. 53′.
7. ☾ 1 ad ι ♎ 12^{h}. 43′.
8. ☾ δ ♏ 7^{h}. 39′.
10. ☾ φ ♐ 23^{h}. 39′.
11. ☾ τ ♐ 7^{h}. 56′.
14. ☾ ξ ♑ 1^{h}. 55′.
16. ☾ 1 Ψ ♒ 5^{h}. 38′.
16. ☾ 2 Ψ ♒ 6^{h}. 26′.
16. ☾ 3 Ψ ♒ 6^{h}. 34′.
21. ☉ enters ♊ at 6^{h}. 55′.
21. ☾ δ ♈ 15^{h}. 47′.
23. ♄ ρ Serp. diff. Lat. 27′.
27. ☾ 2 Ψ ♋ 0^{h}. 9′.
29. ☾ η ♌ 2^{h}. 38′.

MAY 1781. II.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Afc. in Time.	Sun's Declin. North.	Equat. of Time. Sub.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Tu.	1. 11. 24. 14	2. 35. 51,7	15. 16. 19	3. 10,8	7,3
2	W.	1. 12. 22. 18	2. 39. 41,0	15. 34. 10	3. 18,1	6,7
3	Th.	1. 13. 20. 20	2. 43. 30,8	15. 51. 46	3. 24,8	6,2
4	F.	1. 14. 18. 21	2. 47. 21,2	16. 9. 6	3. 31,0	5,5
5	Sa.	1. 15. 16. 21	2. 51. 12,2	16. 26. 11	3. 36,5	5,1
6	*Su.*	1. 16. 14. 19	2. 55. 3,7	16. 43. 0	3. 41,6	4,5
7	M.	1. 17. 12. 14	2. 58. 55,6	16. 59. 32	3. 46,1	3,9
8	Tu.	1. 18. 10. 8	3. 2. 48,3	17. 15. 46	3. 50,0	3,3
9	W.	1. 19. 8. 1	3. 6. 41,6	17. 31. 43	3. 53,3	2,8
10	Th.	1. 20. 5. 52	3. 10. 35,3	17. 47. 23	3. 56,1	2,2
11	F.	1. 21. 3. 42	3. 14. 29,7	18. 2. 46	3. 58,3	1,6
12	Sa.	1. 22. 1. 30	3. 18. 24,7	18. 17. 50	3. 59,9	1,0
13	*Su.*	1. 22. 59. 18	3. 22. 20,2	18. 32. 36	4. 0,9	0,4
14	M.	1. 23. 57. 4	3. 26. 16,3	18. 47. 3	4. 1,3	0,3
15	Tu.	1. 24. 54. 49	3. 30. 13,1	19. 1. 12	4. 1,0	0,9
16	W.	1. 25. 52. 34	3. 34. 10,5	19. 15. 1	4. 0,1	1,4
17	Th.	1. 26. 50. 17	3. 38. 8,5	19. 28. 31	3. 58,7	1,9
18	F.	1. 27. 47. 59	3. 42. 7,1	19. 41. 41	3. 56,8	2,5
19	Sa.	1. 28. 45. 41	3. 46. 6,1	19. 54. 32	3. 54,3	3,0
20	*Su.*	1. 29. 43. 22	3. 50. 5,7	20. 7. 2	3. 51,3	3,7
21	M.	2. 0. 41. 1	3. 54. 5,9	20. 19. 12	3. 47,6	4,1
22	Tu.	2. 1. 38. 39	3. 58. 6,6	20. 31. 0	3. 43,5	4,7
23	W.	2. 2. 36. 15	4. 2. 7,9	20. 42. 28	3. 38,8	5,3
24	Th.	2. 3. 33. 51	4. 6. 9,8	20. 53. 34	3. 33,5	5,8
25	F.	2. 4. 31. 26	4. 10. 12,2	21. 4. 19	3. 27,7	6,3
26	Sa.	2. 5. 28. 59	4. 14. 15,0	21. 14. 42	3. 21,4	6,7
27	*Su.*	2. 6. 26. 31	4. 18. 18,3	21. 24. 43	3. 14,7	7,1
28	M.	2. 7. 24. 2	4. 22. 22,0	21. 34. 22	3. 7,6	7,6
29	Tu.	2. 8. 21. 31	4. 26. 26,2	21. 43. 39	3. 0,0	8,0
30	W.	2. 9. 18. 59	4. 30. 30,8	21. 52. 33	2. 52,0	8,4
31	Th.	2. 10. 16. 26	4. 34. 35,8	22. 1. 4	2. 43,6	

Days.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	15. 54,4	1. 5,9	2. 25,2	0. 003777	1. 4. 19
7	15. 53,1	1. 6,4	2. 24,9	0. 004373	1. 4. 0
13	15. 51,9	1. 6,9	2. 24,5	0. 004946	1. 3. 41
19	15. 50,8	1. 7,5	2. 24,2	0. 005478	1. 3. 22
25	15. 49,8	1. 7,9	2. 23,9	0. 005932	1. 3. 2

Eclipſes of the SATELLITES of JUPITER.

I. Satellite Immerſions.	
Days	H. M. S.
1	7. 43. 38
3	2. 12. 28
4	20. 41. 16
*6	15. 10. 0
*8	9. 38. 42
10	4. 7. 22
11	22. 36. 1
	Emerſions.
13	9. 12. 24
*15	13. 41. 2
*17	8. 9. 37
19	2. 38. 12
20	21. 6. 44
22	15. 35. 17
*24	10. 3. 47
26	4. 32. 17
27	23. 0. 46
29	17. 29. 13
*31	11. 57. 39

II. Satellite. Immerſions.	
Days	H. M. S.
2	3. 18. 57
5	16. 35. 58
9	5. 52. 58
	Emerſions.
12	21. 29. 1
*16	10. 45. 55
19	24. 2. 41
*23	13. 19. 23
27	2. 36. 2
30	15. 52. 36

III. Satellite. Immerſions.	
Days	H. M. S.
2	0. 16. 20
9	4. 15. 10
	Emerſions.
*16	9. 53. 46
*23	13. 52. 32
30	17. 51. 3

IV. Satellite.		Conj.
1	16. 17	Sup.
10	0. 37	Inf.
18	6. 28	Sup.
*26	14. 48	Inf.

MAY 1781. IV.

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Passage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
MERCURY. Gr. Elong. 1^{d}.						
1	9. 5.55	5.23 S	0.14.53	2.58 S	3. 8 N	22.23
4	9.14.40	6. 0	0.18. 1	3. 4	4.14	22.24
7	9.23.46	6.30	0.21.33	3. 4	5.34	22.26
10	10. 3.22	6.50	0.25.30	2.58	7. 5	22.30
13	10.13.36	7. 0	0.29.45	2.49	8.46	22.34
16	10.24.35	6.55	1. 4.20	2.33	10.35	22.39
19	11. 6.31	6.33	1. 9.19	2.12	12.31	22.47
22	11.19.32	5.50	1.14.37	1.48	14.31	22.56
25	0. 3.49	4.41	1.20.13	1.20	16.32	23. 6
28	0.19.26	3. 7	1.26. 9	0.49	18.31	23.19
31	1. 6.24	1. 9	2. 2.22	0.17	20.23	23.32
VENUS.						
1	0.20.49	2.44 S	1. 2.48	1.10 S	11.22 N	23.28
7	1. 0.24	2.22	1.10.13	0.59	13.58	23.34
13	1.10. 0	1.56	1.17.35	0.48	16.19	23.39
19	1.19.38	1.27	1.24.58	0.36	18.25	23.45
25	1.29.16	0.54	2. 2.20	0.23	20.17	23.51
MARS.						
1	8. 8.56	0.40 S	9.16.50	1.18 S	23.41 S	16.36
7	8.12.13	0.46	9.19. 3	1.35	23.40	16.23
13	8.15.31	0.51	9.21. 0	1.54	23.42	16. 8
19	8.18.52	0.57	9.22.40	2.14	23.47	15.51
25	8.22.14	1. 2	9.24. 3	2.36	23.54	15.33
JUPITER. ☍ 12^{d}. 15^{h}.						
1	7.21.43	0.58 N	7.24. 4	1.11 N	17.40 S	12.50
7	7.22.10	0.58	7.23.19	1.11	17.29	12.24
13	7.22.39	0.57	7.22.34	1.10	17.18	11.57
19	7.23. 7	0.57	7.21.48	1.10	17. 7	11.30
25	7.23.35	0.56	7.21. 4	1. 9	16.56	11. 3
SATURN.						
1	8.15.40	1.29 N	8.19.12	1.36 N	21.25 S	14.35
7	8.15.51	1.28	8.18.52	1.37	21.23	14.11
13	8.16. 2	1.28	8.18.31	1.37	21.21	13.46
19	8.16.13	1.27	8.18. 8	1.37	21.19	13.21
5	8.16.23	1.27	8.17.42	1.37	21.17	12.55

MAY 1781.

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D.M.S.	D. M. S.
1	Tu.	4. 12. 45. 40	4. 19. 41. 38	5.14.14 N	5. 6. 26 N
2	W.	4. 26. 42. 34	5. 3. 48. 20	4.53.59	4. 36. 55
3	Th.	5. 10. 58. 43	5. 18. 13. 25	4.15.22	3. 49. 33
4	F.	5. 25. 32. 1	6. 2. 53. 55	3.19.45	2. 46. 27
5	Sa.	6. 10. 18. 29	6. 17. 44. 56	2.10. 9	1. 31. 30
6	*Su.*	6. 25. 12. 22	7. 2. 39. 51	0.51.11 N	0. 10. 0 N
7	M.	7. 10. 6. 23	7. 17. 31. 0	0.31.15 S	1. 11. 46 S
8	Tu.	7. 24. 52. 42	8. 2. 10. 37	1.50.48	2. 27. 40
9	W.	8. 9. 23. 55	8. 16. 31. 58	3. 1.45	3. 32. 32
10	Th.	8. 23. 34. 15	9. 0. 30. 21	3.59.39	4. 22. 49
11	F.	9. 7. 20. 4	9. 14. 3. 21	4.41.50	4. 56. 39
12	Sa.	9. 20. 40. 14	9. 27. 10. 56	5. 7.15	5. 13. 42
13	*Su.*	10. 3. 35. 44	10. 9. 55. 0	5.16. 7	5. 14. 38
14	M.	10. 16. 9. 12	10. 22. 18. 50	5. 9.25	5. 0. 42
15	Tu.	10. 28. 24. 27	11. 4. 26. 38	4.48.41	4. 33. 33
16	W.	11. 10. 25. 58	11. 16. 23. 5	4.15.33	3. 54. 54
17	Th.	11. 22. 18. 33	11. 28. 12. 58	3.31.50	3. 6. 34
18	F.	0. 4. 6. 54	0. 10. 0. 53	2.39.22	2. 10. 27
19	Sa.	0. 15. 55. 28	0. 21. 51. 7	1.40. 7	1. 8. 37
20	*Su.*	0. 27. 48. 16	1. 3. 47. 17	0.36.17 S	0. 3. 23 S
21	M.	1. 9. 48. 33	1. 15. 52. 20	0.29.43 N	1. 2. 42 N
22	Tu.	1. 21. 58. 56	1. 28. 8. 33	1.35.11	2. 6. 48
23	W.	2. 4. 21. 19	2. 10. 37. 23	2.37. 9	3. 5. 50
24	Th.	2. 16. 56. 50	2. 23. 19. 45	3.32.28	3. 56. 41
25	F.	2. 29. 46. 7	3. 6. 15. 59	4.18. 6	4. 36. 22
26	Sa.	3. 12. 49. 20	3. 19. 26. 8	4.51.10	5. 2. 14
27	*Su.*	3. 26. 6. 20	4. 2. 49. 52	5. 9.19	5. 12. 13
28	M.	4. 9. 36. 41	4. 16. 26. 43	5.10.47	5. 4. 58
29	Tu.	4. 23. 19. 54	5. 0. 16. 9	4.54.43	4. 40. 6
30	W.	5. 7. 15. 19	5. 14. 17. 17	4.21.14	3. 58. 19
31	Th.	5. 21. 21. 54	5. 28. 29. 2	3.31.37	3. 1. 35

MAY 1781.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declinat. at Noon.	☽'s Declin. at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	Tu.	9	6. 46	136. 50	143. 49	22. 1 N	19. 46 N
2	W.	10	7. 39	150. 41	157. 26	17. 14	14. 25
3	Th.	11	8. 30	164. 6	170. 41	11. 24	8. 11
4	F.	12	9. 20	177. 13	183. 45	4. 50 N	1. 24 N
5	Sa.	13	10. 11	190. 19	196. 57	2. 5 S	5. 34 S
6	*Su.*	14	11. 3	203. 40	210. 31	8. 58	12. 15
7	M.	15	11. 58	217. 31	224. 42	15. 22	18. 15
8	Tu.	16	12. 56	232. 3	239. 33	20. 49	23. 2
9	W.	17	13. 56	247. 12	254. 58	24. 53	26. 18
10	Th.	18	14. 57	262. 47	270. 34	27. 18	27. 51
11	F.	19	15. 56	278. 17	285. 51	27. 58	27. 38
12	Sa.	20	16. 51	293. 14	300. 22	26. 56	25. 52
13	*Su.*	21	17. 42	307. 16	313. 53	24. 29	22. 49
14	M.	22	18. 29	320. 16	326. 24	20. 55	18. 49
15	Tu.	23	19. 12	332. 19	338. 2	16. 33	14. 8
16	W.	24	19. 53	343. 35	349. 1	11. 36	8. 59
17	Th.	25	20. 32	354. 20	359. 35	6. 18	3. 34 S
18	F.	26	21. 11	4. 50	10. 3	0. 48 S	1. 58 N
19	Sa.	27	21. 50	15. 19	20. 38	4. 44 N	7. 28
20	*Su.*	28	22. 33	26. 2	31. 34	10. 8	12. 44
21	M.	29	23. 17	37. 14	43. 5	15. 14	17. 36
22	Tu.	1	☌	49. 7	55. 22	19. 49	21. 50
23	W.	2	0. 4	61. 50	68. 32	23. 37	25. 8
24	Th.	3	0. 57	75. 26	82. 30	26. 21	27. 15
25	F.	4	1. 53	89. 44	97. 4	27. 47	27. 55
26	Sa.	5	2. 50	104. 28	111. 51	27. 41	27. 3
27	*Su.*	6	3. 47	119. 11	126. 26	26. 1	24. 37
28	M.	7	4. 42	133. 34	140. 32	22. 52	20. 47
29	Tu.	8	5. 35	147. 22	154. 4	18. 24	15. 45
30	W.	9	6. 25	160. 37	167. 5	12. 53	9. 51
31	Th.	10	7. 14	173. 28	179. 49	6. 41	3. 23

MAY 1781.

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon. M. S.	Semid^{r}. ☽ at Midnight. M. S.	Hor. Par. ☽ at Noon. M. S.	Hor. Par. ☽ at Midnight. M. S.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
1	Tu.	15. 57	16. 3	58. 33	58. 55	4877	4850
2	W.	16. 9	16. 15	59. 16	59. 36	4824	4800
3	Th.	16. 20	16. 24	59. 56	60. 13	4776	4755
4	F.	16. 29	16. 32	60. 28	60. 40	4737	4723
5	Sa.	16. 35	16. 36	60. 50	60. 55	4711	4705
6	*Su.*	16. 37	16. 36	60. 57	60. 54	4703	4707
7	M.	16. 34	16. 31	60. 48	60. 37	4714	4727
8	Tu.	16. 27	16. 22	60. 23	60. 5	4743	4765
9	W.	16. 16	16. 10	59. 43	59. 19	4792	4821
10	Th.	16. 3	15. 56	58. 54	58. 27	4852	4885
11	F.	15. 48	15. 41	57. 59	57. 32	4919	4953
12	Sa.	15. 33	15. 26	57. 5	56. 40	4987	5019
13	*Su.*	15. 20	15. 14	56. 15	55. 53	5051	5080
14	M.	15. 8	15. 3	55. 32	55. 14	5107	5130
15	Tu.	14. 59	14. 55	54. 58	54. 45	5152	5169
16	W.	14. 52	14. 50	54. 34	54. 26	5183	5194
17	Th.	14. 48	14. 47	54. 20	54. 16	5202	5207
18	F.	14. 46	14. 47	54. 15	54. 16	5209	5207
19	Sa.	14. 48	14. 49	54. 19	54. 24	5203	5197
20	*Su.*	14. 51	14. 53	54. 30	54. 38	5189	5178
21	M.	14. 56	14. 59	54. 47	54. 58	5166	5152
22	Tu.	15. 2	15. 5	55. 10	55. 23	5136	5119
23	W.	15. 9	15. 13	55. 36	55. 50	5102	5084
24	Th.	15. 17	15. 21	56. 4	56. 19	5065	5046
25	F.	15. 25	15. 29	56. 34	56. 50	5027	5006
26	Sa.	15. 33	15. 38	57. 5	57. 20	4987	4968
27	*Su.*	15. 42	15. 46	57. 36	57. 51	4949	4930
28	M.	15. 50	15. 54	58. 7	58. 22	4910	4891
29	Tu.	15. 58	16. 2	58. 37	58. 51	4872	4855
30	W.	16. 6	16. 10	59. 5	59. 18	4838	4822
31	Th.	16. 13	16. 16	59. 29	59. 41	4809	4794

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S	D. M. S.	D. M. S.	D. M. S.
1		68. 20. 41	66. 37. 47	64. 54. 34	63. 11. 2	61. 27. 11	59. 43. 1	57. 58. 32	56. 13. 44
2	Spica ♍	54. 28. 37	52. 43. 12	50. 57. 28	49. 11. 27	47. 25. 8	45. 38. 31	43. 51. 37	42. 4. 26
3		40. 16. 59	38. 29. 14	36. 41. 15	34. 53. 2	33. 4. 34	31. 15. 53	29. 27. 3	27. 38. 3
4		25. 48. 54	23. 59. 40	22. 10. 21	20. 20. 59	18. 31. 36			
4						64. 10. 53	62. 19. 48	60. 28. 32	58. 37. 6
5		56. 45. 30	54. 53. 46	53. 1. 56	51. 9. 59	49. 17. 56	47. 25. 48	45. 33. 38	43. 41. 26
6	Antares.	41. 49. 11	39. 56. 56	38. 4. 42	36. 12. 30	34. 20. 21	32. 28. 16	30. 36. 18	28. 44. 27
7		26. 52. 43	25. 1. 8	23. 9. 45	21. 18. 36	19. 27. 40	17. 37. 3	15. 46. 44	13. 56. 47
8		12. 7. 13							
8		94. 49. 51	93. 4. 6	91. 18. 37	89. 33. 25	87. 48. 30	86. 3. 53	84. 19. 37	82. 35. 41
9	Fomal-haut.	80. 52. 9	79. 8. 59	77. 26. 14	75. 43. 53	74. 1. 58	72. 20. 30	70. 39. 32	68. 59. 2
10		67. 19. 2	65. 39. 33	64. 0. 37	62. 22. 14	60. 44. 24	59. 7. 9	57. 30. 30	55. 54. 29
11		54. 19. 5	52. 44. 21	51. 10. 15	49. 36. 54	48. 4. 16	46. 32. 24	45. 1. 16	43. 31. 1
12		42. 1. 38	40. 33. 7	39. 5. 33	37. 39. 4	36. 13. 44			
12						98. 11. 5	96. 36. 12	95. 1. 40	93. 27. 29
13	α Arietis.	91. 53. 38	90. 20. 8	88. 46. 57	87. 14. 6	85. 41. 34	84. 9. 21	82. 37. 27	81. 5. 50
14		79. 34. 31	78. 3. 29	76. 32. 44	75. 2. 15	73. 32. 2			

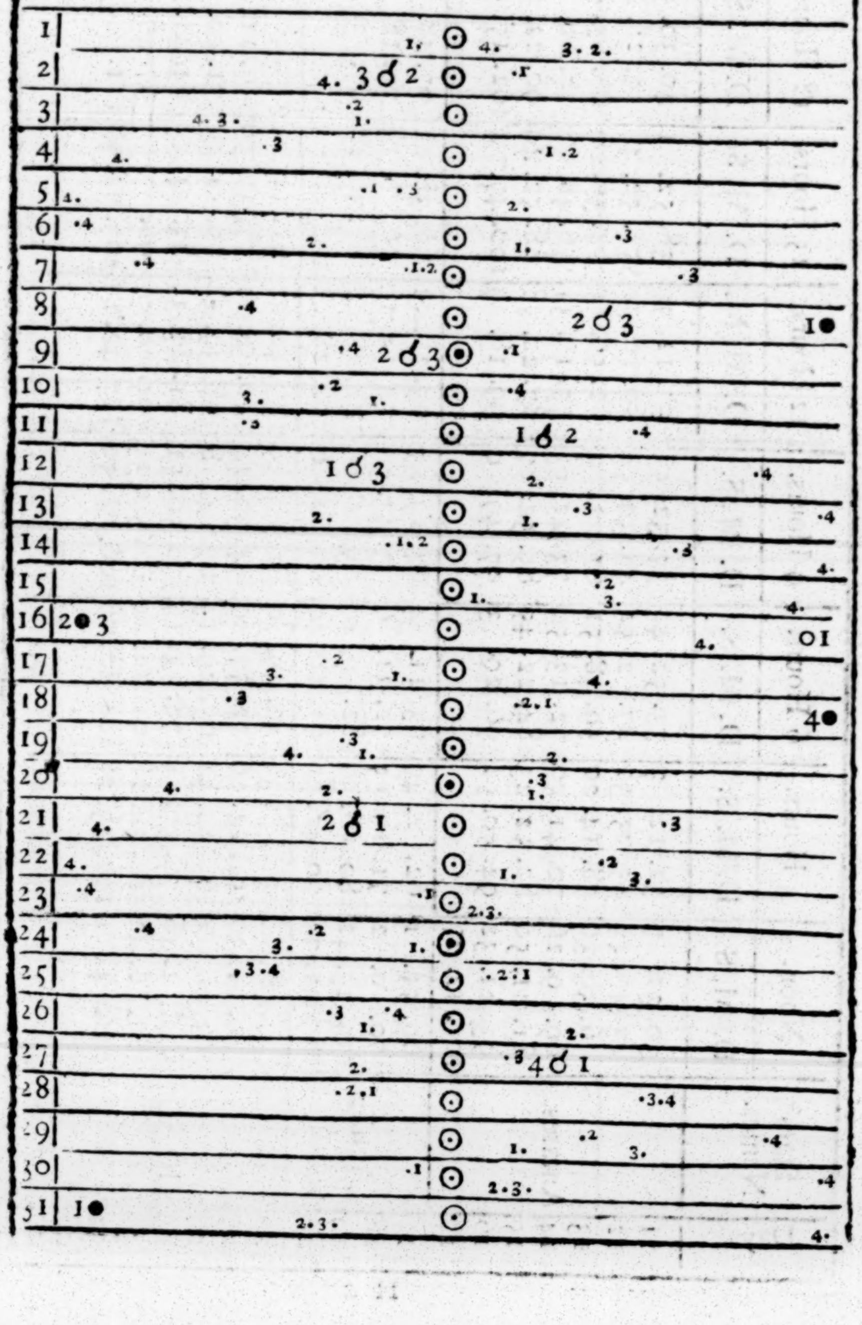
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S	D. M. S.	D. M. S.	D. M. S.	D. M. S.
12	The Sun.	121. 12. 54	119. 42. 15	118. 12. 0	116. 42. 9	115. 12. 41	113. 43. 35	112. 14. 51	110. 46. 28
13		109. 18. 26	107. 50. 46	106. 23. 25	104. 56. 24	103. 29. 42	102. 3. 19	100. 37. 14	99. 11. 27
14		97. 45. 57	96. 20. 44	94. 55. 46	93. 31. 4	92. 6. 37	90. 42. 24	89. 18. 25	87. 54. 39
15		86. 31. 6	85. 7. 45	83. 44. 35	82. 21. 36	80. 58. 47	79. 36. 8	78. 13. 38	76. 51. 16
16		75. 29. 3	74. 6. 57	72. 44. 57	71. 23. 4	70. 1. 16	68. 39. 34	67. 17. 56	65. 56. 21
17		64. 34. 51	63. 13. 24	61. 51. 58	60. 30. 34	59. 9. 12	57. 47. 51	56. 26. 30	55. 5. 9
18		53. 43. 48	52. 22. 26	51. 1. 3	49. 39. 37	48. 18. 10	46. 56. 40	45. 35. 7	44. 13. 29
19		42. 51. 48							
24	Regulus.					63. 29. 40	61. 53. 49	60. 17. 48	58. 41. 35
25		57. 5. 11	55. 28. 36	53. 51. 50	52. 14. 54	50. 37. 47	49. 0. 29	47. 23. 1	45. 45. 23
26		44. 7. 35	42. 29. 38	40. 51. 31	39. 13. 15	37. 34. 50	35. 56. 15	34. 17. 32	32. 38. 42
27		30. 59. 46	29. 20. 42	27. 41. 35	26. 2. 27	24. 23. 18	22. 44. 12	21. 5. 11	19. 26. 15
28		17. 47. 26							
28	Spica ♍	71. 28. 7	69. 46. 30	68. 4. 41	66. 22. 40	64. 40. 27	62. 58. 2	61. 15. 25	59. 32. 36
29		57. 49. 35	56. 6. 21	54. 22. 56	52. 39. 19	50. 55. 31	49. 11. 31	47. 27. 20	45. 42. 58
30		43. 58. 25	42. 13. 41	40. 28. 47	38. 43. 44	36. 58. 31	35. 13. 8	33. 27. 37	31. 41. 59
31		29. 56. 13	28. 10. 19	26. 24. 20	24. 38. 17	22. 52. 13	21. 6. 12	19. 20. 13	17. 34. 17
J. 1		15. 48. 26							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon. D. M. S.	3 Hours. D. M. S	6 Hours. D. M. S.	9 Hours. D. M. S.	12 Hours. D. M. S.	15 Hours. D. M. S.	18 Hours. D. M. S.	21 Hours. D. M. S.
1	The Sun.	91. 21. 5	92. 56. 57	94. 33. 9	96. 9. 40	97. 46. 30	99. 23. 39	101. 1. 8	102. 38. 56
2		104. 17. 3	105. 55. 30	107. 34. 15	109. 13. 20	110. 52. 44	112. 32. 27	114. 12. 28	115. 52. 47
3		117. 33. 25	119. 14. 20	120. 55. 33	122. 37. 2	124. 18. 49			
1	Pollux.	22. 29. 0	24. 11. 52	25. 55. 4	27. 38. 38	29. 22. 32	31. 6. 47	32. 51. 22	34. 36. 17
2		36. 21. 32	38. 7. 7	39. 53. 1	41. 39. 15	43. 25. 48	45. 12. 40	46. 59. 50	48. 47. 19
3		50. 35. 7	52. 23. 13	54. 11. 37	56. 0. 18	57. 49. 16	59. 38. 31	61. 28. 2	63. 17. 48
4		65. 7. 50							
4	Regulus.	28. 52. 3	30. 41. 3	32. 30. 21	34. 20. 0	36. 9. 55	38. 0. 8	39. 50. 36	41. 41. 18
5		43. 32. 14	45. 23. 21	47. 14. 38	49. 6. 4	50. 57. 38	52. 49. 19	54. 41. 4	56. 32. 53
6		58. 24. 46	60. 16. 41	62. 8. 36	64. 0. 30	65. 52. 23	67. 44. 15	69. 36. 1	71. 27. 42
7		73. 19. 17							
7	Spica ♍	19. 21. 58	21. 12. 19	23. 2. 42	24. 53. 5	26. 43. 26	28. 33. 43	30. 23. 54	32. 13. 57
8		34. 3. 50	35. 53. 30	37. 42. 56	39. 32. 7	41. 21. 4	43. 9. 42	44. 58. 2	46. 46. 3
9		48. 33. 46	50. 21. 8	52. 8. 8	53. 54. 47	55. 41. 5	57. 27. 0	59. 12. 31	60. 57. 39
10		62. 42. 24	64. 26. 43	66. 10. 38	67. 54. 8	69. 37. 14	71. 19. 54	73. 2. 9	74. 43. 59
11		76. 25. 23							

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. M.	D. M. S.	D. M. S.	D. M. S.
11	Antares.	30. 31. 7	32. 12. 7	33. 52. 42	35. 32. 53	37. 12. 39	38. 52. 1	40. 30. 59	42. 9. 33
12		43. 47. 44	45. 25. 30	47. 2. 54	48. 39. 54	50. 16. 32	51. 52. 48	53. 28. 43	55. 4. 17
13		56. 39. 30	58. 14. 20	59. 48. 51	61. 23. 3	62. 56. 55	64. 30. 29	66. 3. 45	67. 36. 44
14		69. 9. 26	70. 41. 50	72. 13. 59	73. 45. 53	75. 17. 31	76. 48. 55	78. 20. 6	79. 51. 5
15		81. 21. 50	82. 52. 23	84. 22. 45	85. 52. 57	87. 22. 58	88. 52. 49	90. 22. 32	91. 52. 6
16		93. 21. 32	94. 50. 51	96. 20. 3	97. 49. 9	99. 18. 9	100. 47. 4	102. 15. 54	103. 44. 42
17		105. 13. 27							
17	α Aquilæ.	60. 55. 1	62. 2. 49	63. 11. 4	64. 19. 45	65. 28. 51	66. 38. 21	67. 48. 14	68. 58. 28
18		70. 9. 2	71. 19. 55	72. 31. 6	73. 42. 34	74. 54. 19	76. 6. 19	77. 18. 33	78. 31. 1
19		79. 43. 42	80. 56. 36	82. 9. 40	83. 22. 56	84. 36. 22	85. 49. 58	87. 3. 42	88. 17. 34
20		89. 31. 33	90. 45. 39	91. 59. 50	93. 14. 6	94. 28. 26			
26	The Sun.	37. 36. 23	39. 7. 38	40. 39. 0	42. 10. 35	43. 42. 22	45. 14. 22	46. 46. 34	48. 18. 59
27		49. 51. 36	51. 24. 26	52. 57. 29	54. 30. 44	56. 4. 11	57. 37. 50	59. 11. 42	60. 45. 46
28		62. 20. 2	63. 54. 31	65. 29. 13	67. 4. 8	68. 39. 15	70. 14. 34	71. 50. 6	73. 25. 50
29		75. 1. 46	76. 37. 55	78. 14. 17	79. 50. 51	81. 27. 37	83. 4. 35	84. 41. 46	86. 19. 8
30		87. 56. 42	89. 34. 28	91. 12. 25	92. 50. 34	94. 28. 55	96. 7. 27	97. 46. 11	99. 25. 5
31		101. 4. 11	102. 43. 28	104. 22. 56	106. 2. 33	107. 42. 21	109. 22. 18	111. 2. 25	112. 42. 41
J. 1		114. 23. 6							

Configurations of the SATELLITES of JUPITER at 11 o' Clock at Night.



I. JUNE 1781.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	F.	Nicomede. Oxf T. ends.
2	Sa.	
3	*Su.*	*Whit-Sunday.*
4	M.	*Whit-Mon. K.Geo.*III.*b.*
5	Tu.	*Whit-Tueſday. Pr. Ern.*
6	W.	[*Aug. b.* Boniface.
7	Th.	
8	F.	
9	Sa.	
10	*Su.*	*Tr. Su. Prs. Amelia born.*
11	M.	*St. Barn.* On mor. of H.
12	Tu.	[Trin. 1 ret.
13	W.	Oxford Term begins.
14	Th.	
15	F.	Trinity Term begins.
16	Sa.	
17	*Su.*	*1ſt Su. aft. Tr.* St. Alban.
18	M.	In 8 days of H. Tr. 2 ret.
19	Tu.	
20	W.	Tranſl. Ed. K. of W. Sax.
21	Th.	
22	F.	
23	Sa.	
24	*Su.*	*2d S. aft. Tr. St. John Bap.*
25	M.	In 15 days of H. T. 3 ret.
26	Tu.	
27	W.	
28	Th.	
29	F.	*St. Peter.*
30	Sa.	

Phaſes of the Moon.

	D.	H.	M.
Full Moon —	5.	20.	53
Laſt Quarter —	13.	9.	5
New Moon —	21.	8.	34
Firſt Quarter—	28.	8.	28

Other Phenomena.

D.
1. ☾ γ ♍ 2^{h}. 28′.
☾ θ ♍ 15^{h}. 55′.
2. ☾ λ ♍ 22^{h}. 56′.
3. ☾ α ♎ 12^{h}. 24′.
☾ 1 ad ι ♎ 22^{h}. 12′.
4. ☾ δ ♏ 17^{h}. 25′.
7. ☾ φ ♐ 9^{h}. 25′.
☾ τ ♐ 17^{h}. 37′.
10. ☾ ε ♑ 10^{h}. 25′.
11. ♂ Stationary.
12. ☾ 1 ad ψ ♒ 13^{h}. 21′.
☾ 2 ad ψ ♒ 14^{h}. 15′.
☾ 3 ad ψ ♒ Im. 13^{h}, $34\frac{1}{2}$. * $3'\frac{1}{2}$ N. of ☽'s cent. Em. 14^{h}. 45′. * $0'\frac{1}{4}$ S.
16. ☿ ε ♊ diff. Lat. 11′.
17. ☾ δ ♈ 23^{h}. 19′.
20. ☉ enters ♋ at 15^{h}.40′.
23. ☾ 2 ad ψ ♋ 6 . 15′.
25. ☾ η ♌ 8^{h}. 2′.
27. ☾ η ♍ 23^{h}. 2′.
28. ☾ γ ♍ 8^{h}. 6′.
☾ θ ♍ 21^{h}. 47′.
30. ☾ λ ♍ 5^{h}. 31′.
☾ α ♎ 19^{h}. 20′.

JUNE 1781.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. North.	Equat. of Time Sub.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	F.	2. 11. 13. 51	4. 38. 41,1	22. 9. 12	2. 34,8	9,2
2	Sa.	2. 12. 11. 15	4. 42. 46,9	22. 16. 57	2. 25,6	9,6
3	*Su.*	2. 13. 8. 38	4. 46. 53,0	22. 24. 19	2. 16,0	9,9
4	M.	2. 14. 6. 0	4. 50. 59,5	22. 31. 17	2. 6,1	10,2
5	Tu.	2. 15. 3. 21	4. 55. 6,3	22. 37. 52	1. 55,9	10,5
6	W.	2. 16. 0. 41	4. 59. 13,4	22. 44. 3	1. 45,4	10,8
7	Th.	2. 16. 58. 0	5. 3. 20,8	22. 49. 50	1. 34,6	11,1
8	F.	2. 17. 55. 19	5. 7. 28,5	22. 55. 13	1. 23,5	11,4
9	Sa.	2. 18. 52. 37	5. 11. 36,5	23. 0. 12	1. 12,1	11,7
10	*Su.*	2. 19. 49. 55	5. 15. 44,8	23. 4. 47	1. 0,4	11,9
11	M.	2. 20. 47. 12	5. 19. 53,3	23. 8. 57	0. 48,5	12,2
12	Tu.	2. 21. 44. 29	5. 24. 2,0	23. 12. 43	0. 36,3	12,4
13	W.	2. 22. 41. 46	5. 28. 11,0	23. 16. 5	0. 23,9	12,5
14	Th.	2. 23. 39. 2	5. 32. 20,1	23. 19. 2	0. 11,4	12,6
15	F.	2. 24. 36. 18	5. 36. 29,3	23. 21. 35	Ad: 1,2	12,7
16	Sa.	2. 25. 33. 34	5. 40. 38,6	23. 23. 43	0. 13,9	12,9
17	*Su.*	2. 26. 30. 50	5. 44. 48,1	23. 25. 26	0. 26,8	13,0
18	M.	2. 27. 28. 6	5. 48. 57,7	23. 26. 44	0. 39,8	13,1
19	Tu.	2. 28. 25. 22	5. 53. 7,4	23. 27. 37	0. 52,9	13,0
20	W.	2. 29. 22. 37	5. 57. 17,0	23. 28. 6	1. 5,9	13,1
21	Th.	3. 0. 19. 52	6. 1. 26,6	23. 28. 10	1. 19,0	13,0
22	F.	3. 1. 17. 7	6. 5. 36,3	23. 27. 49	1. 32,0	13,0
23	Sa.	3. 2. 14. 21	6. 9. 45,8	23. 27. 3	1. 45,0	12,9
24	*Su.*	3. 3. 11. 35	6. 13. 55,3	23. 25. 52	1. 57,9	12,8
25	M.	3. 4. 8. 49	6. 18. 4,6	23. 24. 17	2. 10,7	12,6
26	Tu.	3. 5. 6. 2	6. 22. 13,8	23. 22. 17	2. 23,3	12,4
27	W.	3. 6. 3. 15	6. 26. 22,9	23. 19. 52	2. 35,7	12,3
28	Th.	3. 7. 0. 27	6. 30. 31,8	23. 17. 3	2. 48,0	12,1
29	F.	3. 7. 57. 39	6. 34. 40,4	23. 13. 49	3. 0,1	11,8
30	Sa.	3. 8. 54. 51	6. 38. 48,8	23. 10. 11	3. 11,9	11,5

Days.	Semidiameter of the Sun.	Time of D paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	15. 48,8	1. 8,4	2. 23,6	0,006359	1. 2. 40
7	15. 48,1	1. 8,6	2. 23,3	0,006666	1. 2. 21
13	15. 47,5	1. 8,7	2. 23,2	0,006925	1. 2. 2
19	15. 47,2	1. 8,8	2. 23,1	0,007119	1. 1. 43
25	15. 46,9	1. 8,8	2. 23,0	0,007217	1. 1. 24

Eclipſes of the SATELLITES of JUPITER.

I. Satellite. Emerſions.

Days	H. M. S.
2	6. 26. 5
4	0. 54. 30
5	19. 22. 54
7	13. 51. 19
9	8. 19. 43
11	2. 48. 5
12	21. 16. 27
14	15. 44. 49
16	10*13. 11
18	4. 41. 34
19	23. 9. 57
21	17. 38. 20
23	12* 6. 43
25	6. 35. 6
27	1. 3. 31
28	19. 31. 55
30	14. 0. 22

II. Satellite. Emerſions.

Days	H. M. S.
3	5. 9. 15
6	18. 25. 38
10	7. 42. 5
13	20. 58. 30
17	10*14. 56
20	23. 31. 34
24	12. 48. 0
28	2. 4. 33

III. Satellite.

Days	H. M. S.	
6	20. 6. 55	I.
6	21. 49. 11	E.
14	0. 4. 14	I.
14	1. 47. 20	E.
21	4. 1. 36	I.
21	5. 45. 31	E.
28	7. 59. 4	I.
28	9*43. 48	E.

IV. Satellite. Conj.

3	20. 44	Sup.
12	5. 22	Inf.
20	11*33	Sup.
28	20. 37	Inf.

Days.	Heliocentric Longitude. S. D. M.	Heliocentric Latitude. D. M.	Geocentric Longitude. S. D. M.	Geocentric Latitude. D. M.	Declination. D. M.	Passage over Merid. H. M.
MERCURY. Sup. ☌ 6^{d}. $12^{h}\frac{1}{4}$.						
1	1. 12. 20	0. 25 S	2. 4. 29	0. 6 S	20. 58 N	23. 36
4	2. 0. 43	1. 49 N	2. 10. 59	0. 26 N	22. 32	23. 52
7	2. 19. 37	3. 55	2. 17. 35	0. 55	23. 47	0. 2
10	3. 8. 24	5. 34	2. 24. 9	1. 19	24. 39	0. 18
13	3. 26. 26	6. 37	3. 0. 35	1. 38	25. 6	0. 34
16	4. 13. 15	7. 0	3. 6. 47	1. 51	25. 8	0. 49
19	4. 28. 40	6. 49	3. 12. 42	1. 57	24. 48	1. 3
22	5. 12. 39	6. 16	3. 18. 18	1. 56	24. 8	1. 15
25	5. 25. 21	5. 24	3. 23. 35	1. 49	23. 12	1. 25
28	6. 6. 56	4. 24	3. 28. 31	1. 37	22. 4	1. 33
31	6. 14. 8	3. 41	4. 1. 39	1. 26	21. 13	1. 38
VENUS. Sup. ☌ 2^{d}. $2^{h}\frac{1}{2}$.						
1	2. 10. 32	0. 15 S	2. 10. 56	0. 6 S	22. 0 N	0. 0
7	2. 20. 12	0. 20 N	2. 18. 18	0. 8 N	23. 5	0. 6
13	2. 29. 54	0. 53	2. 25. 41	0. 22	23. 46	0. 13
19	3. 9. 37	1. 25	3. 3. 3	0. 35	24. 1	0. 20
25	3. 19. 20	1. 56	3. 10. 26	0. 48	23. 52	0. 27
MARS.						
1	8. 26. 13	1. 9 S	9. 25. 10	3. 4 S	24. 8 S	15. 9
7	8. 29. 40	1. 14	9. 25. 44	3. 30	24. 28	14. 48
13	9. 3. 9	1. 19	9. 25. 50	3. 57	24. 53	14. 24
19	9. 6. 40	1. 23	9. 25. 30	4. 24	25. 23	13. 58
25	9. 10. 12	1. 28	9. 24. 40	4. 50	25. 58	13. 29
JUPITER.						
1	7. 24. 7	0. 56 N	7. 20. 15	1. 8 N	16. 44 S	10. 31
7	7. 24. 35	0. 55	7. 19. 36	1. 7	16. 35	10. 4
13	7. 25. 3	0. 55	7. 19. 2	1. 5	16. 27	9. 37
19	7. 25. 31	0. 54	7. 18. 33	1. 4	16. 21	9. 10
25	7. 25. 59	0. 54	7. 18. 10	1. 2	16. 15	8. 44
SATURN. ☍ 6^{d}. $19^{h}\frac{1}{4}$.						
1	8. 16. 36	1. 27 N	8. 17. 12	1. 37 N	21. 14 S	12. 24
7	8. 16. 47	1. 26	8. 16. 46	1. 37	21. 12	11. 58
13	8. 16. 58	1. 26	8. 16. 20	1. 36	21. 10	11. 31
19	8. 17. 9	1. 25	8. 15. 54	1. 35	21. 9	11. 4
25	8. 17. 19	1. 25	8. 15. 27	1. 34	21. 7	10. 37

JUNE 1781.

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D.M S.
1	F.	6. 5. 38. 28	6. 12. 49. 52	2. 28. 21 N	1.52.47 N
2	Sa.	6. 20. 2. 54	6. 27. 17. 12	1. 15. 14 N	0.36.25 N
3	*Su.*	7. 4. 32. 13	7. 11. 47. 29	0. 3. 2 S	0.42.26 S
4	M.	7. 19. 2. 16	7. 26. 15. 58	1. 21. 3	1.58.14
5	Tu.	8. 3. 27. 50	8. 10. 37. 13	2. 33. 19	3. 5.45
6	W.	8. 17. 43. 19	8. 24. 45. 34	3. 34. 59	4. 0.39
7	Th.	9. 1. 43. 26	9. 8. 36. 22	4. 22. 26	4.40. 5
8	F.	9. 15. 24. 1	9. 22. 6. 9	4. 53. 32	5. 2.44
9	Sa.	9. 28. 42. 37	10. 5. 13. 25	5. 7. 45	5. 8.40
10	*Su.*	10. 11. 38. 42	10. 17. 58. 40	5. 5. 39	4.58.54
11	M.	10. 24. 13. 40	11. 0. 24. 5	4. 48. 42	4.35.11
12	Tu.	11. 6. 30. 24	11. 12. 33. 7	4. 18. 41	3.59 29
13	W.	11. 18. 32. 56	11. 24. 30. 19	3. 37. 45	3.13.47
14	Th.	0. 0. 26. 7	0. 6. 20. 48	2. 47. 51	2.20.10
15	F.	0. 12. 15. 5	0. 18. 9. 43	1. 51. 2	1.20.42
16	Sa.	0. 24. 5. 11	1. 0. 2. 13	0. 49. 26 S	0.17.32 S
17	*Su.*	1. 6. 1. 20	1. 12. 3. 3	0. 14. 45 N	0.47. 3 N
18	M.	1. 18. 7. 50	1. 24. 16. 9	1. 19. 3	1.50.25
19	Tu.	2. 0. 28. 19	2. 6. 44. 36	2. 20. 46	2.49.40
20	W.	2. 13. 5. 7	2. 19. 30. 2	3. 16. 48	3.41.40
21	Th.	2. 25. 59. 22	3. 2. 33. 3	4. 4. 0	4.23.17
22	F.	3. 9. 10. 55	3. 15. 52. 48	4. 39. 13	4.51.30
23	Sa.	3. 22. 38. 20	3. 29. 27. 17	4. 59. 50	5. 3.58
24	*Su.*	4. 6. 19. 15	4. 13. 13. 54	5. 3. 46	4.59. 8
25	M.	4. 20. 10. 44	4. 27. 9. 33	4. 50. 4	4.36.40
26	Tu.	5. 4. 9. 51	5. 11. 11. 26	4. 19. 2	3.57.27
27	W.	5. 18. 13. 59	5. 25. 17. 12	3. 32. 12	3. 3.38
28	Th.	6. 2. 21. 6	6. 9. 25. 19	2. 32. 16	1.58.29
29	F.	6. 16. 29. 45	6. 23. 34. 19	1. 22. 52	0.46. 0 N
30	Sa.	7. 0. 38. 48	7. 7. 43. 3	0. 8. 22	0.29.19 S

JUNE 1781.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declinat. at Noon.	☽'s Declin. at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	F.	11	8. 2	186. 9	192. 32	0. 2 N	3. 21 S
2	Sa.	12	8. 51	198. 59	205. 32	6. 41 S	9. 57
3	*Su.*	13	9. 43	212. 15	219. 7	13. 6	16. 4
4	M.	14	10. 38	226. 11	233. 27	18. 48	21. 16
5	Tu.	15	11. 36	240. 54	248. 32	23. 23	25. 8
6	W.	16	12. 36	256. 17	264. 7	26. 28	27. 22
7	Th.	17	13. 37	271. 57	279. 43	27. 50	27. 51
8	F.	18	14. 35	287. 21	294. 47	27. 26	26. 38
9	Sa.	19	15. 29	302. 0	308. 57	25. 27	23. 58
10	*Su.*	20	16. 17	315. 38	322. 3	22. 12	20. 12
11	M.	21	17. 3	328. 13	334. 10	17. 59	15. 38
12	Tu.	22	17. 45	339. 54	345. 28	13. 8	10. 32
13	W.	23	18. 25	350. 54	356. 15	7. 52	5. 9 S
14	Th.	24	19. 4	1. 31	6. 45	2. 24 S	0. 23 N
15	F.	25	19. 43	11. 59	17. 16	3. 9 N	5. 53
16	Sa.	26	20. 24	22. 36	28. 3	8. 35	11. 13
17	*Su.*	27	21. 7	33. 37	39. 21	13. 46	16. 13
18	M.	28	21. 54	45. 16	51. 25	18. 31	20. 39
19	Tu.	29	22. 44	57. 46	64. 22	22. 34	24. 15
20	W.	30	23. 40	71. 12	78. 15	25. 39	26. 44
21	Th.	1	☌	85. 29	92. 53	27. 28	27. 50
22	F.	2	0. 37	100. 21	107. 52	27. 47	27. 21
23	Sa.	3	1. 35	115. 22	122. 47	26. 30	25. 14
24	*Su.*	4	2. 32	130. 5	137. 14	23. 37	21. 38
25	M.	5	3. 26	144. 13	151. 1	19. 21	16. 48
26	Tu.	6	4. 17	157. 40	164. 11	14. 1	11. 2
27	W.	7	5. 5	170. 35	176. 54	7. 55	4. 41 N
28	Th.	8	5. 53	183. 10	189. 26	1. 23 N	1. 55 S
29	F.	9	6. 41	195. 44	202. 6	5. 13 S	8. 27
30	Sa.	10	7. 31	208. 35	215. 11	11. 35	14. 34

JUNE 1781.

Days of the Month.	Days of the Week.	Semidʳ. ☽ at Noon.	Semidʳ. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	F.	16. 18	16. 20	59. 51	59. 58	4782	4773
2	Sa.	16. 22	16. 23	60. 4	60. 8	4766	4761
3	*Su.*	16. 23	16. 23	60. 8	60. 6	4761	4764
4	M.	16. 21	16. 19	60. 0	59. 52	4771	4781
5	Tu.	16. 16	16. 12	59. 40	59. 27	4795	4811
6	W.	16. 7	16. 2	59. 10	58. 51	4832	4855
7	Th.	15. 56	15. 50	58. 30	58. 8	4881	4908
8	F.	15. 44	15. 38	57. 45	57. 22	4937	4966
9	Sa.	15. 32	15. 25	56. 59	56. 35	4995	5026
10	*Su.*	15. 19	15. 13	56. 13	55. 52	5054	5081
11	M.	15. 8	15. 4	55. 33	55. 16	5106	5128
12	Tu.	15. 0	14. 56	55. 1	54. 48	5148	5165
13	W.	14. 53	14. 51	54. 38	54. 30	5178	5189
14	Th.	14. 50	14. 49	54. 25	54. 22	5195	5199
15	F.	14. 49	14. 49	54. 22	54. 24	5199	5197
16	Sa.	14. 51	14. 53	54. 29	54. 36	5190	5181
17	*Su.*	14. 55	14. 58	54. 45	54. 56	5169	5154
18	M.	15. 2	15. 6	55. 9	55. 23	5137	5119
19	Tu	15. 10	15. 14	55. 38	55. 54	5099	5079
20	W.	15. 19	15. 23	56. 11	56. 28	5056	5035
21	Th.	15. 28	15. 33	56. 46	57. 3	5012	4990
22	F.	15. 38	15. 42	57. 21	57. 37	4967	4947
23	Sa.	15. 46	15. 50	57. 52	58. 7	4928	4910
24	*Su.*	15. 54	15. 57	58. 20	58. 32	4893	4878
25	M.	16. 0	16. 3	58. 44	58. 53	4864	4853
26	Tu.	16. 5	16. 7	59. 2	59. 9	4842	4833
27	W.	16. 9	16. 10	59. 15	59. 20	4826	4820
28	Th.	16. 11	16. 12	59. 24	59. 26	4815	4812
29	F.	16. 12	16. 12	59. 28	59. 28	4810	4810
30	Sa.	16. 12	16. 11	59. 27	59. 25	4811	4813

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours	18 Hours.	21 Hours.
		D. M. S.	D. M. S	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1		61. 25. 36	59. 37. 44	57. 49. 43	56. 1. 34	54. 13. 18	52. 24. 55	50. 36. 25	48.47.50
2	Antares.	46. 59. 8	45. 10. 21	43. 21. 29	41. 32. 34	39. 43. 35	37. 54. 34	36. 5. 31	34.16.26
3		32. 27. 21							
3		84. 55. 42	83. 25. 49	81. 56. 5	80. 26. 33	78. 57. 12	77. 28. 7	75. 59. 20	74.30.54
4	α Aquilæ.	73. 2. 58	71. 35. 13	70. 8. 3	68. 41. 26	67. 15. 25	65. 50. 3	64. 25. 23	63. 1.29
5		61. 38. 25							
5		86. 34. 42	84. 51. 19	83. 8. 9	81. 25. 13	79. 42. 33	78. 0. 9	76. 18. 3	74.36.16
6	Fomal-	72. 54. 48	71. 13. 40	69. 32. 54	67. 52. 32	66. 12. 33	64. 32. 59	62. 53. 53	61.15.15
7	haut.	59. 37. 6	57. 59. 27	56. 22. 21	54. 45. 49	53. 9. 52	51. 34. 31	49. 59. 48	48.25.47
8		46. 52. 28	45. 19. 53	43. 48. 7	42. 17. 13	40. 47. 13	39. 18. 13	37. 50. 12	36.23.17
9		34. 57. 29							
9		96. 40. 10	95. 3. 47	93. 27. 44	91. 52. 2	90. 16. 40	88. 41. 39	87. 6. 57	85.32.35
10		83. 58. 33	82. 24. 51	80. 51. 28	79. 18. 25	77. 45. 40	76. 13. 14	74. 41. 7	73. 9.18
11	α Arietis.	71. 37. 47	70. 6. 34	68. 35. 38	67. 4. 58	65. 34. 36	64. 4. 30	62. 34. 40	61. 5. 6
12		59. 35. 48	58. 6. 46	56. 37. 59	55. 9. 27	53. 41. 9	52. 13. 4	50. 45. 14	49.17.38
13		47. 50. 18	46. 23. 11	44. 56. 19	43. 29. 41	42. 3. 17			

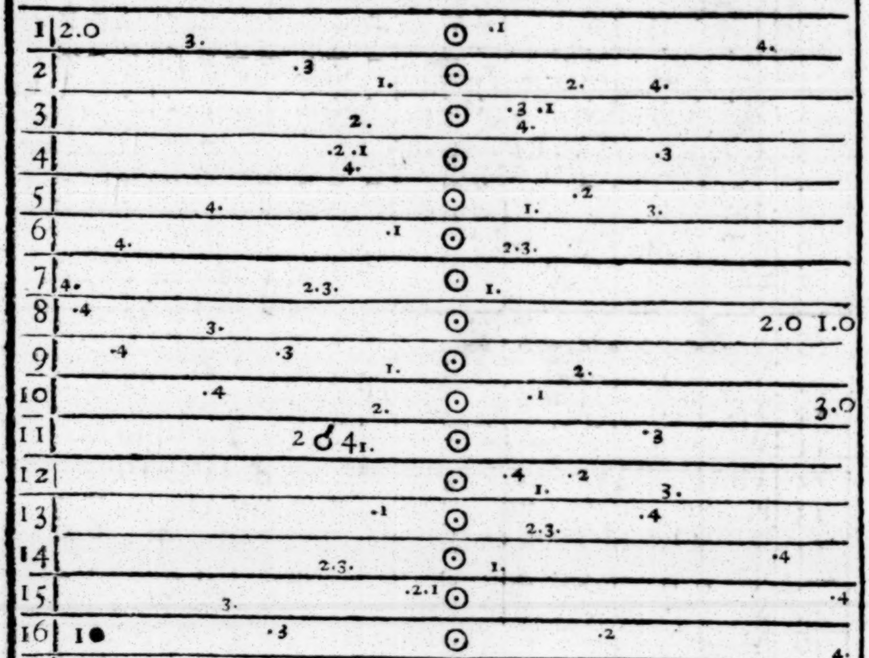
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
10	The Sun.					122. 11. 42	120. 45. 13	119. 19. 1	117. 53. 7
11		116. 27. 29	115. 2. 8	113. 37. 2	112. 12. 11	110. 47. 35	109. 23. 13	107. 59. 4	106. 35. 7
12		105. 11. 26	103. 47. 57	102. 24. 39	101. 1. 31	99. 38. 35	98. 15. 47	96. 53. 9	95. 30. 39
13		94. 8. 18	92. 46. 6	91. 24. 2	90. 2. 4	88. 40. 12	87. 18. 24	85. 56. 40	84. 35. 0
14		83. 13. 24	81. 51. 52	80. 30. 22	79. 8. 55	77. 47. 29	76. 26. 4	75. 4. 39	73. 43. 13
15		72. 21. 47	71. 0. 18	69. 38. 47	68. 17. 13	66. 55. 37	65. 33. 58	64. 12. 15	62. 50. 27
16		61. 28. 35	60. 6. 36	58. 44. 31	57. 22. 19	56. 0. 1	54. 37. 36	53. 15. 2	51. 52. 21
17		50. 29. 32	49. 6. 34	47. 43. 27	46. 20. 10	44. 56. 45	43. 33. 10	42. 9. 24	40. 45. 29
18		39. 21. 23							
23	Regulus.	34. 24. 6	32. 43. 32	31. 2. 45	29. 21. 50	27. 40. 49	25. 59. 47	24. 18. 46	22. 37. 50
24		20. 57. 2	19. 16. 26	17. 36. 6	15. 56. 5	14. 16. 27			
24	Spica ♍					67. 51. 26	66. 8. 0	64. 24. 24	62. 40. 39
25		60. 56. 46	59. 12. 45	57. 28. 37	55. 44. 21	53. 59. 59	52. 15. 31	50. 30. 58	48. 46. 19
26		47. 1. 35	45. 16. 45	43. 31. 50	41. 46. 51	40. 1. 47	38. 16. 41	36. 31. 31	34. 46. 20
27		33. 1. 6	31. 15. 50	29. 30. 35	27. 45. 21	26. 0. 7	24. 14. 56	22. 29. 48	20. 44. 44
28		18. 59. 45							
28	Antares.	64. 41. 58	62. 55. 45	61. 9. 31	59. 23. 15	57. 36. 58	55. 50. 39	54. 4. 18	52. 17. 55
29		50. 31. 31	48. 45. 5	46. 58. 38	45. 12. 11	43. 25. 44	41. 39. 18	39. 52. 52	38. 6. 27
30		36. 20. 3	34. 33. 40	32. 47. 19	31. 1. 0	29. 14. 44	27. 28. 32	25. 42. 24	23. 56. 20
J. 1		22. 10. 21							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	The Sun.	114. 23. 6	116. 3. 39	117. 44. 22	119. 25. 13	121. 6. 12			
1		38. 53. 18	40. 40. 29	42. 27. 52	44. 15. 25	46. 3. 8	47. 51. 1	49. 39. 2	51.27.11
2	Regulus.	53. 15. 28	55. 3. 53	56. 52. 23	58. 40. 59	60. 29. 40	62. 18. 25	64. 7. 13	65.56. 3
3		67. 44. 56	69. 33. 50	71. 22. 45	73. 11. 39	75. 0. 34			
3						21. 1. 58	22. 49. 56	24. 38. 0	26.26. 9
4		28. 14. 20	30. 2. 32	31. 50. 44	33. 38. 54	35. 27. 0	37. 14. 58	39. 2. 50	40.50.34
5	Spica ♍	42. 38. 11	44. 25. 39	46. 12. 57	48. 0. 4	49. 46. 59	51. 33. 41	53. 20. 8	55. 6.22
6		56. 52. 21	58. 38. 4	60. 23. 30	62. 8. 40	63. 53. 34	65. 38. 10	67. 22. 28	69. 6.27
7		70. 50. 8							
7		24. 55. 56	26. 39. 12	28. 22. 9	30. 4. 47	31. 47. 6	33. 29. 5	35. 10. 44	36.52. 2
8		38. 33. 0	40. 13. 37	41. 53. 52	43. 33. 47	45. 13. 20	46. 52. 31	48. 31. 20	50. 9.49
9		51. 47. 56	53. 25. 42	55. 3. 7	56. 40. 12	58. 16. 56	59. 53. 19	61. 29. 22	63. 5. 5
10	Antares.	64. 40. 28	66. 15. 31	67. 50. 16	69. 24. 42	70. 58. 49	72. 32. 39	74. 6. 11	75.39.27
11		77. 12. 25	78. 45. 6	80. 17. 32	81. 49. 43	83. 21. 39	84. 53. 21	86. 24. 49	87.56. 4
12		89. 27. 5	90. 57. 53	92. 28. 30	93. 58. 56	95. 29. 11	96. 59. 17	98. 29. 15	99.59. 4
13		101. 28. 44	102. 58. 15	104. 27. 40	105. 56. 56	107. 26. 5			

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
13	α Aquilæ.					62. 30. 37	63. 39. 35	64. 48. 56	65. 58. 37
14		67. 8. 39	68. 19. 0	69. 29. 39	70. 40. 36	71. 51. 49	73. 3. 18	74. 15. 4	75. 27. 3
15		76. 39. 15	77. 51. 39	79. 4. 15	80. 17. 2	81. 30. 0	82. 43. 8	83. 56. 25	85. 9. 53
16		86. 23. 28							
16	Fomal-haut.	55. 45. 56	57. 10. 0	58. 34. 21	59. 58. 57	61. 23. 49	62. 48. 57	64. 14. 20	65. 39. 59
17		67. 5. 53	68. 32. 2	69. 58. 25	71. 25. 3	72. 51. 56	74. 19. 3	75. 46. 25	77. 14. 1
18		78. 41. 52	80. 9. 57	81. 38. 18	83. 6. 53	84. 35. 43			
18	α Arietis.					21. 9. 51	22. 32. 41	23. 56. 44	25. 21. 56
19		26. 48. 11	28. 15. 25	29. 43. 32	31. 12. 28	32. 42. 7	34. 12. 25	35. 43. 18	37. 14. 40
20		38. 46. 25							
24	The Sun.					39. 49. 25	41. 25. 11	43. 1. 10	44. 37. 20
25		46. 13. 41	47. 50. 12	49. 26. 53	51. 3. 42	52. 40. 40	54. 17. 44	55. 54. 55	57. 32. 13
26		59. 9. 39	60. 47. 12	62. 24. 52	64. 2. 38	65. 40. 30	67. 18. 28	68. 56. 31	70. 34. 38
27		72. 12. 51	73. 51. 7	75. 29. 27	77. 7. 51	78. 46. 19	80. 24. 53	82. 3. 31	83. 42. 12
28		85. 20. 56	86. 59. 42	88. 38. 30	90. 17. 20	91. 56. 12	93. 35. 6	95. 14. 1	96. 52. 58
29		98. 31. 56	100. 10. 56	101. 49. 57	103. 28. 58	105. 7. 59	106. 46. 59	108. 25. 59	110. 4. 58
30		111. 43. 56	113. 22. 53	115. 1. 48	116. 40. 41	118. 19. 32	119. 58. 20	121. 37. 4	
28	Regulus.					42. 38. 58	44. 24. 46	46. 10. 38	47. 56. 33
29		49. 42. 32	51. 28. 34	53. 14. 38	55. 0. 44	56. 46. 52	58. 33. 0	60. 19. 9	62. 5. 18
30		63. 51. 28	65. 37. 38	67. 23. 48	69. 9. 57	70. 56. 5	72. 42. 11	74. 28. 16	76. 14. 18
J. 1		78. 0. 17							

Configurations of the SATELLITES of JUPITER at 10 o'Clock at Night.



JULY 1781.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	*Su.*	*3d Sunday after Trinity.*
2	M.	Viſitation of V. Mary.
3	Tu.	Camb. Commencement.
4	W.	Tranſl. of S. Martin. Tr.
5	Th.	[Term ends
6	F.	Cam. Term ends.
7	Sa.	
8	*Su.*	*4th Sunday after Trinity.*
9	M.	Oxford Act.
10	Tu.	
11	W.	
12	Th.	
13	F.	
14	Sa.	Oxford Term ends.
15	*Su.*	*5th Sunday after Trinity.*
16	M.	[Swithin.
17	Tu.	
18	W.	
19	Th.	
20	F.	Margaret.
21	Sa.	
22	*Su.*	*6th Sunday after Trinity.*
23	M.	[Magdalen.
24	Tu.	
25	W.	*St. James.*
26	Th.	St. Anne.
27	F.	
28	Sa.	
29	*Su.*	*7th Sunday after Trinity.*
30	M.	
31	Tu.	

Phaſes of the Moon.

	D.	H.	M.
Full Moon —	5.	6.	18
Laſt Quarter –	13.	2.	25
New Moon —	20.	18.	33
Firſt Quarter –	27.	13.	5

Other Phenomena.

D.

1. ☾ 1 ad ι ♎ 5^{h}. 24′.
2. ☾ δ ♏ 1^{h}. 7′.
   ☾ σ ♏ 10^{h}. 4′.
4. ☾ φ ♐ 18^{h}. 15′.
   ☾ σ ♐ 22^{h}. 8′.
5. ☾ τ ♐ 2^{h}. 30′.
   ☾ ♂ 21^{h}. 21′.
7. ☾ ε ♑ 19^{h}. 7′.
9. ☾ 1 ad ψ ♒ 21^{h}. 31′.
   ☾ 2 ad ψ ♒ 22^{h}. 24′.
   ☾ 3 ad ψ ♒ 22^{h}. 32′.
15. ☾ δ ♈ 7^{h}. 30′.
16. ♃ Stationary.
22. ☉ enters ♌ at 2^{h}. 30′.
    ☾ η ♌ 14^{h}. 53′.
25. ☾ η ♍ 4^{h}. 37′.
    ☾ γ ♍ 13^{h}. 35′.
26. ☾ θ ♍ 3^{h}. 8′.
27. ☾ λ ♍ 10^{h}. 51′.
    ☿ Stationary.
28. ☾ α ♎ 0^{h}. 47′.
    ☾ 1 ad ι ♎ 10^{h}. 57′.
29. ☾ δ ♏ 6^{h}. 58′.
    ☾ σ ♏ 16^{h}. 4′.

JULY 1781. II.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. South.	Equat. of Time. Add.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	*Su.*	3. 9. 52. 1	6. 42. 56,8	23. 6.10	3. 23,4	11,3
2	M.	3. 10. 49. 12	6. 47. 4,8	23. 1.43	3. 34,7	11,0
3	Tu.	3. 11. 46. 24	6. 51. 12,4	22.56.52	3. 45,7	10,6
4	W.	3. 12. 43. 34	6. 55. 19,5	22.51.37	3. 56,3	10,2
5	Th.	3. 13. 40. 44	6. 59. 26,4	22.45.59	4. 6,5	10,0
6	F.	3. 14. 37. 55	7. 3. 33,0	22.39.57	4. 16,5	9,6
7	Sa	3. 15. 35. 6	7. 7. 39,2	22.33.31	4. 26,1	9,2
8	*Su.*	3. 16. 32. 17	7. 11. 45,0	22.26.42	4. 35,3	8,8
9	M.	3. 17. 29. 28	7. 15. 50,4	22.19.29	4. 44,1	8,5
	Tu.	3. 18. 26. 40	7. 19. 55,5	22.11.54	4. 52,6	8,1
11	W.	3. 19. 23. 53	7. 24. 0,1	22. 3.55	5. 0,7	7,6
12	Th.	3. 20. 21. 6	7. 28. 4,3	21.55.34	5. 8,3	7,2
13	F.	3. 21. 18. 20	7. 32. 8,1	21.46.50	5. 15,5	6,7
14	Sa.	3. 22. 15. 34	7. 36. 11,3	21.37.44	5. 22,2	6,3
15	*Su.*	3. 23. 12. 50	7. 40. 14,2	21.28.15	5. 28,5	5,9
16	M.	3. 24. 10. 6	7. 44. 16,5	21.18.24	5. 34,4	5,3
17	Tu.	3. 25. 7. 24	7. 48. 18,5	21. 8.12	5. 39,7	4,7
18	W.	3. 26. 4. 41	7. 52. 19,8	20.57.38	5. 44,4	4,2
19	Th.	3. 27. 1. 59	7. 56. 20,6	20.46.43	5. 48,6	3,7
20	F.	3. 27. 59. 19	8. 0. 20,9	20.35.26	5. 52,3	3,2
21	Sa.	3. 28. 56. 39	8. 4. 20,7	20.23.49	5. 55,5	2,6
22	*Su.*	3. 29. 53. 59	8. 8. 19,8	20.11.52	5. 58,1	2,1
23	M.	4. 0. 51. 20	8. 12. 18,4	19.59.34	6. 0,2	1,4
24	Tu.	4. 1. 48. 41	8. 16. 16,4	19.46.56	6. 1,6	0,9
25	W.	4. 2. 46. 3	8. 20. 13,8	19.33.58	6. 2,5	0,2
26	Th.	4. 3. 43. 26	8. 24. 10,6	19.20.41	6. 2,7	0,5
27	F.	4. 4. 40. 49	8. 28. 6,7	19. 7. 5	6. 2,2	1,0
28	Sa.	4. 5. 38. 12	8. 32. 2,2	18.53.10	6. 1,2	1,6
29	*Su.*	4. 6. 35. 36	8. 35. 57,2	18.38.56	5. 59,6	2,3
30	M.	4. 7. 33. 0	8. 39. 51,4	18.24.24	5. 57,3	2,9
31	Tu.	4. 8. 30. 25	8. 43. 45,1	18. 9.34	5. 54,4	3,4

Days.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon' Node.
	M. S.	M. S.	M. S.		S. D. M.
1	15. 46,9	1. 8,6	2. 23,0	0. 007225	1. 1. 5
7	15. 47,0	1. 8,4	2. 23,0	0. 007174	1. 0. 46
13	15. 47,2	1. 8,0	2. 23,1	0. 007072	1. 0. 27
19	15. 47,6	1. 7,6	2. 23,2	0. 006896	1. 0. 8
25	15. 48,2	1. 7,1	2. 23,4	0. 006628	0. 29. 49

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite. Emerſions.

Days	H. M. S.
2	8. 28. 48
4	2. 57. 17
5	21. 25. 48
7	15. 54. 18
9	10*22. 49
11	4. 51. 22
12	23. 19. 58
14	17. 48. 34
16	12. 17. 13
18	6. 45. 51
20	1. 14. 33
21	19. 43. 14
23	14. 11. 59
25	8. 40. 44
27	3. 9. 34
28	21. 38. 23
30	16. 7. 19

II. Satellite. Emerſions.

Days	H. M. S.
1	15. 21. 14
5	4. 38. 2
8	17. 54. 54
12	7. 11. 56
15	20. 29. 8
19	9*46. 22
22	23. 3. 48
26	12. 21. 23
30	1. 39. 9

III. Satellite.

Days.	H. M. S.	
5	11. 56. 41	
5	13. 42. 41	E
12	15. 54. 43	I
12	17. 41. 39	E
19	19. 53. 6	I
19	21. 40. 59	E
26	23. 51. 59	I
27	1. 40. 48	E

IV. Satellite. Conj.

7	3. 13	Sup.
15	12. 46	Inf.
23	19. 52	Sup.

JULY 1781. IV.

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Paſſage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
			MERCURY. Gr. Elong. 13^d.			
1	6. 17. 37	3. 19 N	4. 3. 9	1. 19 N	20. 46 N	1. 40
4	6. 27. 32	2. 12	4. 7. 25	0. 57	19. 21	1. 45
7	7. 6. 53	1. 5 N	4. 11. 20	0. 30 N	17. 53	1. 48
10	7. 15. 47	0. 0	4. 14. 53	0. 0	16. 23	1. 49
13	7. 24. 22	1. 3 S	4. 18. 1	0. 34 S	14. 55	1. 49
16	8. 2. 44	2. 3	4. 20. 41	1. 10	13. 31	1. 47
19	8. 11. 0	3. 0	4. 22. 52	1. 49	12. 12	1. 42
22	8. 19. 14	3. 53	4. 24. 28	2. 29	11. 3	1. 35
25	8. 27. 33	4. 41	4. 25. 25	3. 8	10. 7	1. 27
28	9. 6. 2	5. 24	4. 25. 39	3. 44	9. 28	1. 15
31	9. 14. 46	6. 1	4. 25. 6	4. 16	9. 8	1. 0
			VENUS.			
1	3. 29. 5	2. 22 N	3. 17. 48	1. 0 N	23. 16 N	0. 34
7	4. 8. 50	2. 45	3. 25. 11	1. 10	22. 16	0. 42
13	4. 18. 36	3. 3	4. 2. 33	1. 18	20. 52	0. 49
19	4. 28. 21	3. 15	4. 9. 56	1. 24	19. 8	0. 55
25	5. 8. 7	3. 22	4. 17. 19	1. 28	17. 4	1. 1
			MARS. ☍ 12^d. $6^h\frac{1}{4}$.			
1	9. 13. 48	1. 32 S	9. 23. 32	5. 15 S	26. 34 S	13. 0
7	9. 17. 25	1. 36	9. 22. 3	5. 37	27. 12	12. 28
13	9. 21. 3	1. 39	9. 20. 24	5. 54	27. 45	11. 57
19	9. 24. 43	1. 42	9. 18. 43	6. 4	28. 10	11. 26
25	9. 28. 24	1. 45	9. 17. 10	6. 9	28. 28	10. 55
			JUPITER.			
1	7. 26. 27	0. 53 N	7. 17. 52	1. 1 N	16. 12 S	8. 18
7	7. 26. 55	0. 52	7. 17. 41	1. 0	16. 11	7. 53
13	7. 27. 23	0. 52	7. 17. 36	0. 58	16. 10	7. 28
19	7. 27. 51	0. 51	7. 17. 38	0. 57	16. 13	7. 4
25	7. 28. 19	0. 51	7. 17. 47	0. 55	16. 16	6. 40
			SATURN.			
1	8. 17. 30	1. 25 N	8. 15. 4	1. 33 N	21. 5 S	10. 11
7	8. 17. 41	1. 25	8. 14. 42	1. 32	21. 4	9. 45
13	8. 17. 52	1. 24	8. 14. 23	1. 32	21. 2	9. 19
19	8. 18. 2	1. 24	8. 14. 6	1. 31	21. 1	8. 54
25	8. 18. 13	1. 23	8. 13. 51	1. 29	21. 0	8. 29

JULY 1781.

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M S.
1	*Su.*	7. 14. 46. 52	7. 21. 49. 59	1. 6. 31 S	1.42.30 S
2	M.	7. 28. 52. 7	8. 5. 52. 59	2. 16. 50	2.48.59
3	Tu.	8. 12. 52. 8	8. 19. 49. 10	3. 18. 23	3.44.38
4	W.	8. 26. 43. 39	9. 3. 35. 11	4. 7. 23	4.26.21
5	Th.	9. 10. 23. 18	9. 17. 7. 40	4. 41. 21	4.52.16
6	F.	9. 23. 47. 56	10. 0. 23. 49	4. 59. 2	5. 1.42
7	Sa.	10. 6. 55. 12	10. 13. 21. 57	5. 0. 22	4.55.13
8	*Su.*	10. 19. 44. 3	10. 26. 1. 36	4. 46. 25	4.34.13
9	M.	11. 2. 14. 49	11. 8. 23. 56	4. 18. 50	4. 0.37
10	Tu.	11. 14. 29. 21	11. 20. 31. 29	3. 39. 47	3.16.38
11	W.	11. 26. 30. 50	0. 2. 27. 59	2. 51. 29	2.24.35
12	Th.	0. 8. 23. 29	0. 14. 18. 2	1. 56. 14	1.26.41
13	F.	0. 20. 12. 19	0. 26. 6. 58	0. 56. 12 S	0.25. 5 S
14	Sa.	1. 2. 2. 43	1. 8. 0. 14	0. 6. 23 N	0.37.57 N
15	*Su.*	1. 14. 0. 13	1. 20. 3. 15	1. 9. 16	1.40. 4
16	M.	1. 26. 9. 55	2. 2. 20. 54	2. 9. 59	2.38.42
17	Tu.	2. 8. 36. 32	2. 14. 57. 16	3. 5. 51	3.31. 2
18	W.	2. 21. 23. 18	2. 27. 54. 54	3. 53. 52	4.13.57
19	Th.	3. 4. 32. 9	3. 11. 14. 53	4. 30. 53	4.44.21
20	F.	3. 18. 2. 56	3. 24. 55. 59	4. 53. 57	4 59.24
21	Sa.	4. 1. 53. 36	4. 8. 55. 13	5. 0. 29	4.57. 3
22	*Su.*	4. 16. 0. 10	4. 23. 7. 46	4. 49. 2	4.36.29
23	M.	5. 0. 17. 20	5. 7. 28. 6	4. 19. 30	3.58.22
24	Tu.	5. 14. 39. 27	5. 21. 50. 44	3. 33. 23	3. 5. 0
25	W.	5. 29. 1. 27	6. 6. 11. 9	2. 33. 41	1.59.58
26	Th.	6. 13. 19. 28	6. 20. 26. 8	1. 24. 26	0.47.42 N
27	F.	6. 27. 31. 1	7. 4. 33. 58	0. 10. 22 N	0.26.58 S
28	Sa.	7. 11. 34. 52	7. 18. 33. 40	1. 3. 42 S	1.39.17
29	*Su.*	7. 25. 30. 21	8. 2. 24. 53	2. 13. 12	2.44.58
30	M.	8. 9. 17. 10	8. 16. 7. 8	3. 14. 7	3.40.17
31	Tu.	8. 22. 54. 41	8. 29. 39. 43	4. 3. 7	4.22.25

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſs-age over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declinat. at Noon.	☽'s Declin. at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	*Su.*	11	8. 23	221. 58	228. 56	17. 21 S	19. 54 S
2	M.	12	9. 19	236. 6	243. 27	22. 9	24. 5
3	Tu.	13	10. 17	250. 58	258. 36	25. 39	26. 48
4	W.	14	11. 17	266. 19	274. 3	27. 33	27. 51
5	Th.	15	12. 16	281. 43	289. 16	27. 44	27. 12
6	F.	16	13. 11	296. 38	303. 47	26. 16	24. 59
7	Sa.	17	14. 3	310. 42	317. 21	23. 24	21. 32
8	*Su.*	18	14. 51	323. 45	329. 54	19. 27	17. 9
9	M.	19	15. 35	335. 50	341. 34	14. 42	12. 9
10	Tu.	20	16. 15	347. 9	352. 36	9. 29	6. 46
11	W.	21	16. 55	357. 56	3. 13	4. 1 S	1. 14 S
12	Th.	22	17. 34	8. 28	13. 43	1. 33 N	4. 19 N
13	F.	23	18. 14	19. 1	24. 22	7. 2	9. 42
14	Sa.	24	18. 56	29. 50	35. 25	12. 18	14. 48
15	*Su.*	25	19. 41	41. 11	47. 8	17. 10	19. 23
16	M.	26	20. 30	53. 18	59. 42	21. 25	23. 14
17	Tu.	27	21. 23	66. 22	73. 14	24. 50	26. 7
18	W.	28	22. 20	80. 21	87. 39	27. 5	27. 41
19	Th.	29	23. 19	95. 7	102. 41	27. 54	27. 43
20	F.	1	☌	110. 17	117. 53	27. 6	26. 5
21	Sa.	2	0. 18	125. 23	132. 46	24. 38	22. 49
22	*Su.*	3	1. 14	140. 0	147. 4	20. 39	18. 10
23	M.	4	2. 8	153. 57	160. 41	15. 26	12. 28
24	Tu.	5	2. 59	167. 16	173. 44	9. 19	6. 4 N
25	W.	6	3. 47	180. 8	186. 28	2. 44 N	0. 37 S
26	Th.	7	4. 36	192. 48	199. 10	3. 58 S	7. 15
27	F.	8	5. 25	205. 36	212. 8	10. 27	13. 29
28	Sa.	9	6. 16	218. 48	225. 37	16. 20	18. 57
29	*Su.*	10	7. 10	232. 36	239. 45	21. 19	23. 22
30	M.	11	8. 7	247. 3	254. 30	25. 4	26. 24
31	Tu.	12	9. 5	262. 2	269. 37	27. 20	27. 50

VII. JULY 1781.

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon.	Semid^{r}. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	*Su.*	16. 10	16. 8	59. 20	59. 15	4820	4826
2	M.	16. 7	16. 4	59. 7	58. 58	4835	4846
3	Tu.	16. 1	15. 58	58. 47	58. 34	4860	4876
4	W.	15. 54	15. 49	58. 20	58. 4	4893	4913
5	Th.	15. 45	15. 40	57. 48	57. 30	4933	4956
6	F.	15. 35	15. 30	57. 11	56. 52	4980	5004
7	Sa.	15. 24	15. 19	56. 32	56. 14	5029	5053
8	*Su.*	15. 14	15. 10	55. 56	55. 38	5076	5099
9	M.	15. 5	15. 1	55. 22	55. 7	5120	5140
10	Tu.	14. 58	14. 55	54. 55	54. 45	5155	5169
11	W.	14. 52	14. 51	54. 35	54. 29	5182	5190
12	Th.	14. 50	14. 49	54. 25	54. 23	5195	5198
13	F.	14. 49	14. 50	54. 24	54. 28	5197	5191
14	Sa.	14. 52	14. 55	54. 34	54. 43	5183	5171
15	*Su.*	14. 58	15. 1	54. 54	55. 6	5157	5141
16	M.	15. 5	15. 10	55. 22	55. 40	5120	5097
17	Tu	15. 15	15. 20	55. 59	56. 18	5072	5048
18	W.	15. 26	15. 32	56. 40	57. 1	5019	4992
19	Th.	15. 38	15. 44	57. 23	57. 45	4965	4937
20	F.	15. 50	15. 55	58. 5	58. 25	4912	4887
21	Sa.	16. 0	16. 4	58. 43	58. 59	4865	4845
22	*Su.*	16. 8	16. 11	59. 13	59. 25	4828	4813
23	M.	16. 14	16. 16	59. 34	59. 41	4802	4794
24	Tu.	16. 17	16. 17	59. 45	59. 46	4789	4788
25	W.	16. 17	16. 17	59. 47	59. 44	4787	4790
26	Th.	16. 16	16. 14	59. 40	59. 35	4795	4801
27	F.	16. 12	16. 10	59. 27	59. 19	4811	4821
28	Sa.	16. 7	16. 4	59. 9	58. 59	4833	4845
29	*Su.*	16. 1	15. 58	58. 48	58. 36	4859	4874
30	M.	15. 55	15. 51	58. 24	58. 11	4889	4905
31	Tu.	15. 47	15 44	57. 57	57. 43	4922	4940

Distances of ☽'s Center from Sun, and from Stars east of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours	18 Hours.	21 Hours.
		D. M. S.	D. M. S	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	α Aquilæ.	76. 34. 38	75. 8. 17	73. 42. 16	72. 16. 37	70. 51. 23	69. 26. 36	68. 2. 23	66.38.44
2		65. 15. 39	63. 53. 15	62. 31. 33	61. 10. 37	59. 50. 26			
2	Fomal-haut.					84. 13. 51	82. 33. 13	80. 52. 45	79.12.28
3		77. 32. 22	75. 52. 29	74. 12. 50	72. 33. 26	70. 54. 17	69. 15. 24	67. 36. 49	65.58.34
4		64. 20. 37	62. 43. 0	61. 5. 49	59. 28. 59	57. 52. 35	56. 16. 35	54. 41. 5	53. 6. 5
5		51. 31. 34	49. 57. 38	48. 24. 17	46. 51. 32	45. 19. 26			
5	α Pegasi.					66. 48. 34	65. 17. 49	63. 47. 31	62.17.44
6		60. 48. 29	59. 19. 47	57. 51. 42	56. 24. 14	54. 57. 24	53. 31. 16	52. 5. 50	50.41. 9
7		45. 17. 15							
7	α Arietis.	88. 35. 34	87. 0. 11	85. 25. 5	83. 50. 16	82. 15. 44	80. 41. 29	79. 7. 32	77.33.51
8		76. 0. 28	74. 27. 22	72. 54. 34	71. 22. 2	69. 49. 47	68. 17. 49	66. 46. 8	65.14.44
9		63. 43. 36	62. 12. 45	60. 42. 10	59. 11. 51	57. 41. 49	56. 12. 3	54. 42. 32	53.13.18
10		51. 44. 19							
10	Aldeba-ran.	81. 56. 23	80. 26. 34	78. 56. 57	77. 27. 30	75. 58. 15	74. 29. 9	73. 0. 13	71.31.25
11		70. 2. 47	68. 34. 16	67. 5. 53	65. 37. 38	64. 9. 31	62. 41. 32	61. 13. 40	59.45.53
12		58. 18. 13	56. 50. 36	55. 23. 5	53. 55. 38	52. 28. 16	51. 0. 58	49. 33. 44	48. 6.34
13		46. 39. 27							

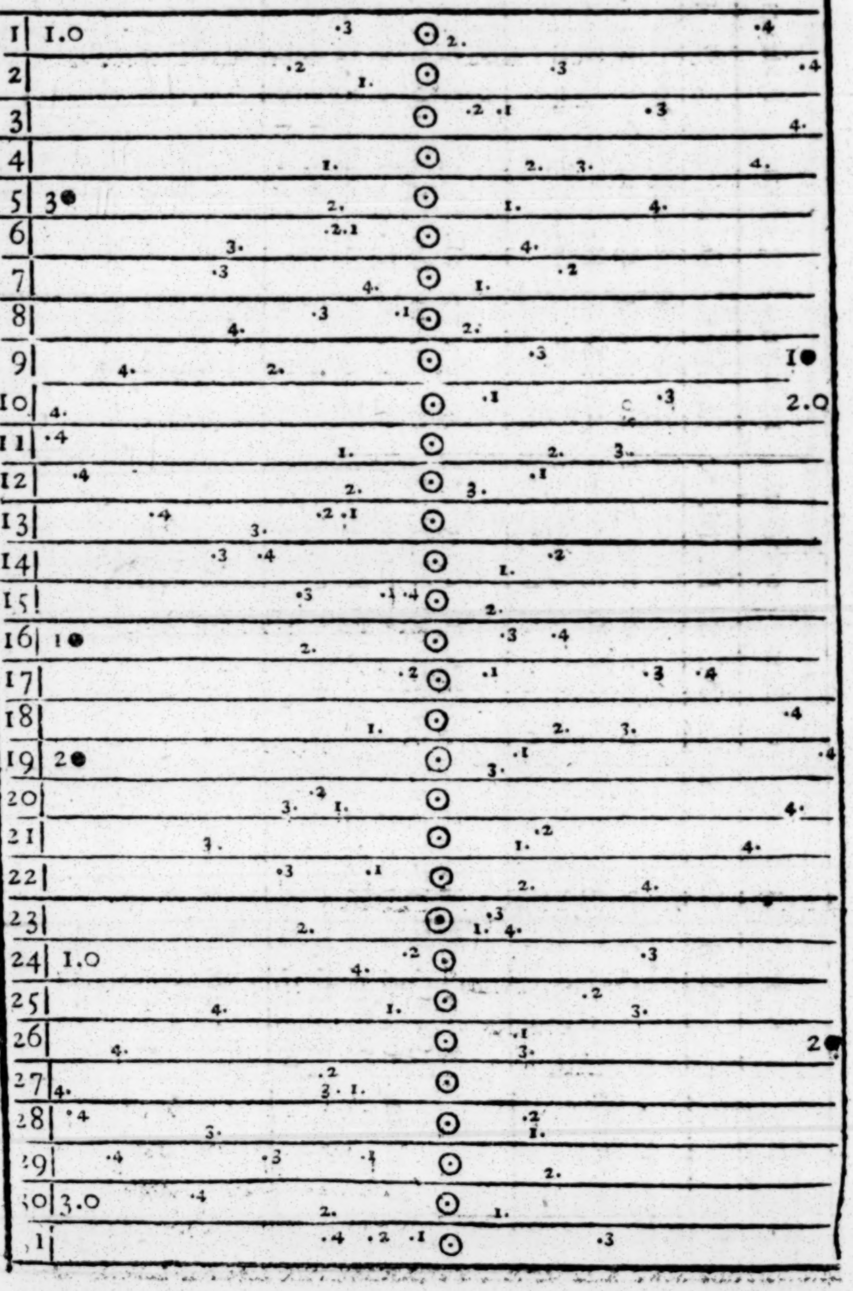
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
10	The Sun.			121. 6 20	119. 43. 28	118. 20. 45	116. 58. 11	115. 35. 45	114. 13. 26
11		112. 51. 15	111. 29. 9	110. 7. 10	108. 45. 16	107. 23. 29	106. 1. 49	104. 40. 13	103. 18. 40
12		101. 57. 12	100. 35. 45	99. 14. 20	97. 52. 56	96. 31. 33	95. 10. 11	93. 48. 48	92. 27. 24
13		91. 6. 0	89. 44. 34	88. 23. 6	87. 1. 34	85. 40. 0	84. 18. 21	82. 56. 36	81. 34. 46
14		80. 12. 51	78. 50. 50	77. 28. 42	76. 6. 26	74. 44. 2	73. 21. 29	71. 58. 47	70. 35. 55
15		69. 12. 53	67. 49. 41	66. 26. 17	65. 2. 42	63. 38. 56	62. 14. 58	60. 50. 46	59. 26. 21
16		58. 1. 43	56. 36. 49	55. 11. 41	53. 46. 18	52. 20. 40	50. 54. 48	49. 28. 40	48. 2. 17
17		46. 35. 38	45. 8. 42	43. 41. 30	42. 14. 2	40. 46. 18			
22	Spica ♍	65. 5. 25	63. 19. 15	61. 32. 54	59. 46. 24	57. 59. 45	56. 12. 58	54. 26. 4	52. 39. 3
23		50. 51. 56	49. 4. 44	47. 17. 29	45. 30. 9	43. 42. 46	41. 55. 19	40. 7. 51	38. 20. 22
24		36. 32. 51	34. 45. 21	32. 57. 55	31. 10. 29	29. 23. 6	27. 35. 48	25. 48. 36	24. 1. 30
25		22. 14. 32							
25	Antares.	68. 0. 25	66. 12. 43	64. 25. 4	62. 37. 28	60. 49. 56	59. 2. 28	57. 15. 4	55. 27. 46
26		53. 40. 31	51. 53. 23	50. 6. 22	48. 19. 26	46. 32. 36	44. 45. 52	42. 59. 15	41. 12. 45
27		39. 26. 23	37. 40. 9	35. 54. 2	34. 8. 4	32. 22. 14	30. 36. 33	28. 51. 0	27. 5. 36
28		25. 20. 21							
28	α Aquilæ.	79. 19. 0	77. 52. 56	76. 27. 15	75. 1. 52	73. 36. 56	72. 12. 25	70. 48. 25	69. 24. 57
29		68. 2. 0	66. 39. 39	65. 17. 57	63. 56. 54	62. 36. 36			
29	Fomalhaut.					87. 29. 31	85. 50. 31	84. 11. 41	82. 33. 2
30		80. 54. 34	79. 16. 17	77. 38. 14	76. 0. 25	74. 22. 51	72. 45. 31	71. 8. 27	69. 31. 39
31		67. 55. 7	66. 18. 51	64. 42. 54	63. 7. 16	61. 31. 57	59. 57. 0	58. 22. 26	56. 48. 15
A. 1		55. 14. 29							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Spica ♍	23. 59. 48	25. 45. 14	27. 30. 39	29. 16. 4	31. 1. 29	32. 46. 55	34. 32. 18	36.17.38
2		38. 2. 54	39. 48. 6	41. 33. 13	43. 18. 15	45. 3. 13	46. 48. 3	48. 32. 45	50.17.19
3		52. 1. 46	53. 46. 4	55. 30. 12	57. 14. 10	58. 57. 59	60. 41. 37	62. 25. 4	64. 8.19
4		65. 51. 23							
4	Antares.	19. 57. 31	21. 40. 14	23. 22. 45	25. 5. 6	26. 47. 14	28. 29. 10	30. 10. 53	31.52.22
5		33. 33. 39	35. 14. 41	36. 55. 28	38. 36. 1	40. 16. 18	41. 56. 19	43. 36. 4	45.15.33
6		46. 54. 46	48. 33. 42	50. 12. 22	51. 50. 46	53. 28. 53	55. 6. 43	56. 44. 17	58.21.33
7		59. 58. 33	61. 35. 16	63. 11. 41	64. 47. 50	66. 23. 42	67. 59. 16	69. 34. 34	71. 9.35
8		72. 44. 20	74. 18. 49	75. 53. 2	77. 26. 59	79. 0. 41	80. 34. 7	82. 7. 19	83.40.15
9		85. 12. 57	86. 45. 24	88. 17. 37	89. 49. 37	91. 21. 23	92. 52. 57	94. 24. 18	95.55.28
10		97. 26. 26	98. 57. 13	100. 27. 49	101. 58. 14	103. 28. 30			
10	α Aquilæ.					59. 20. 12	60. 28. 32	61. 37. 18	62.46.28
11		63. 56. 3	65. 6. 0	66. 16. 16	67. 26. 50	68. 37. 43	69. 48. 47	71. 0. 6	72.11.41
12		73. 23. 31	74. 35. 31	75. 47. 42	77. 0. 4	78. 12. 36			
12	Fomal-haut.					46. 44. 1	48. 5. 52	49. 27. 58	50.50.23
13		52. 13. 4	53. 36. 1	54. 59. 13	56. 22. 40	57. 46. 22	59. 10. 18	60. 34. 27	61.58.51
14		63. 23. 28	64. 48. 19	66. 13. 23	67. 38. 41	69. 4. 12	70. 29. 57	71. 55. 56	73.22. 9
15		74. 48. 35	76. 15. 15	77. 42. 9	79. 9. 17	80. 36. 39			

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S
15						17. 27. 1	18. 44. 39	20. 4. 3	21.25. 6
16		22. 47. 38	24. 11. 39	25. 36. 47	27. 3. 2	28. 30. 24	29. 58. 22	31. 27. 5	32.56.34
17	α Arietis	34. 26. 43	35. 57. 28	37. 28. 46	39. 0. 40	40. 33. 5	42. 6. 0	43. 39. 21	45.13.13
18		46. 47. 33	48. 22. 20	49. 57. 34	51. 33. 14	53. 9. 20	54. 45. 51	56. 22. 46	58. 0. 5
19		59. 37. 48	61. 15. 53	62. 54. 21	64. 33. 10	66. 12. 20			
23								39. 38. 27	41.18. 8
24		42. 57. 54	44. 37. 45	46. 17. 40	47. 57. 37	49. 37. 37	51. 17. 38	52. 57. 39	54.37.40
25		56. 17. 42	57. 57. 42	59. 37. 39	61. 17. 35	62. 57. 28	64. 37. 18	66. 17. 4	67.56.46
26	The Sun.	69. 36. 25	71. 15. 58	72. 55. 26	74. 34. 49	76. 14. 6	77. 53. 17	79. 32. 22	81.11.20
27		82. 50. 12	84. 28. 57	86. 7. 35	87. 46. 5	89. 24. 28	91. 2. 43	92. 40. 49	94.18.47
28		95. 56. 37	97. 34. 18	99. 11. 50	100. 49. 13	102. 26. 27	104. 3. 32	105. 40. 28	107.17.15
29		108. 53. 52	110. 30. 20	112. 6. 37	113. 42. 45	115. 18. 42	116. 54. 29	118. 30. 5	120. 5.31
27						13. 51. 42	15. 35. 41	17. 19. 49	19. 4. 0
28		20. 48. 16	22. 32. 35	24. 16. 53	26. 1. 10	27. 45. 26	29. 29. 34	31. 13. 37	32.57.34
29	Spica ♍	34. 41. 25	36. 25. 7	38. 8. 42	39. 52. 8	41. 35. 27	43. 18. 37	45. 1. 38	46.44.30
30		48. 27. 14	50. 9. 48	51. 52. 11	53. 34. 26	55. 16. 30	56. 58. 24	58. 40. 8	60.21.42
31		62. 3. 6	63. 44. 19	65. 25. 22	67. 6. 14	68. 46. 56	70. 27. 26	72. 7. 45	73.47.52
A. 1		75. 27. 48							

Configurations of the SATELLITES of JUPITER at Half an Hour past 9 o' Clock in the Evening.



AUGUST 1781.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	W.	Lammas-Day.
2	Th.	
3	F.	
4	Sa.	
5	*Su.*	*8th Sunday after Trinity.*
6	M.	Transfig. of our Lord.
7	Tu.	Name of Jeſus.
8	W.	
9	Th.	
10	F.	St. Lawrence.
11	Sa.	*Prs. of Brunſwick born.*
12	*Su.*	*9th Sunday after Trinity.*
13	M.	*[Pr. of Wales born 1762.*
14	Tu.	
15	W.	
16	Th.	*Prince Frederick born.*
17	F.	
18	Sa.	
19	*Su.*	*10th Sunday after Trinity.*
20	M.	
21	Tu.	*Pr. William Henry born.*
22	W.	
23	Th.	
24	F.	*St. Bartholomew.*
25	Sa.	
26	*Su.*	*11th Sunday after Trinity.*
27	M.	
28	Tu.	St. Auguſtine.
29	W.	Beheading St. John Bapt.
30	Th.	
31	F.	

Phaſes of the Moon.

	D.H.M.
Full Moon —	3. 17. 31
Laſt Quarter —	11. 19. 47
New Moon —	19. 3. 20
Firſt Quarter —	25. 19. 3

Other Phenomena.

D.
1. ☾ φ ♐ 1h. 22′.
☾ τ ♐ 9h. 46′.
☾ ♂ 16h. 48′.
4. ☾ ε ♑ 3h. 6′.
6. ☾ 1 ad ψ ♒ 5h. 28′.
☾ 2 ad ψ ♒ 6h. 21′.
☾ 3 ad ψ ♒ 6h. 29′.
11. ☾ δ ♈ 15h. 40′.
13. ♀ χ ♌ diff. Lat. 2′.
14. ♂ Stationary.
16. ☾ ι ♊ 5h. 45′.
♄ Stationary.
☾ 2 ad ψ ♋ 23h. 47′.
17. ♀ σ ♌ diff. Lat. 22′.
20. ☿ Stationary.
21. ☾ η ♍ 12h. 9′.
☾ γ ♍ 20h. 51′.
22. ☉ enters ♍ at 8h. 50′.
☾ θ ♍ 10h. 2′.
23. ☾ λ ♍ 17h. 0′.
♀ β ♍ diff. Lat. 29′.
24. ☾ 1 ad ι ♎ 16h. 41′.
25. ☾ δ ♏ 12h. 29′.
☾ σ ♏ 21h. 34′.
26. ☾ α ♏ 0h. 58′.
28. ☾ φ ♐ 7h. 10′.
☾ τ ♐ 15h. 40′.
30. ♀ η ♍ diff. Lat. 24′.
31. ☾ ε ♑ 9h. 53′.

AUGUST 1781.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. North.	Equat. of Time. Add.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	W.	4. 9. 27. 51	8.47.38,2	17. 54. 25	5. 51,0	4,1
2	Th.	4. 10. 25. 18	8.51.30,6	17. 38. 59	5. 46,9	4,8
3	F.	4. 11. 22. 45	8.55.22,4	17. 23. 17	5. 42,1	5,4
4	Sa.	4. 12. 20. 13	8.59.13,5	17. 7. 18	5. 36,7	5,9
5	*Su.*	4. 13. 17. 42	9. 3. 4,2	16. 51. 2	5. 30,8	6,5
6	M.	4. 14. 15. 12	9. 6.54,2	16. 34. 29	5. 24,3	7,0
7	Tu.	4. 15. 12. 43	9.10.43,7	16. 17. 40	5. 17,3	7,7
8	W.	4. 16. 10. 16	9.14.32,6	16. 0. 36	5. 9,6	8,3
9	Th.	4. 17. 7. 51	9.18.20,8	15. 43. 16	5. 1,3	8,8
10	F.	4. 18. 5. 27	9.22. 8,6	15. 25. 40	4. 52,5	9,4
11	Sa.	4. 19. 3. 4	9.25.55,7	15. 7. 50	4. 43,1	9,8
12	*Su.*	4. 20. 0. 43	9.29.42,4	14. 49. 45	4. 33,3	10,3
13	M.	4. 20. 58. 24	9.33.28,6	14. 31. 26	4. 23,0	10,9
14	Tu.	4. 21. 56. 6	9.37.14,2	14. 12. 53	4. 12,1	11,5
15	W.	4. 22. 53. 50	9.40.59,3	13. 54. 6	4. 0,6	11,9
16	Th.	4. 23. 51. 35	9.44.43,9	13. 35. 6	3. 48,7	12,5
17	F.	4. 24. 49. 22	9.48.27,9	13. 15. 52	3. 36,2	13,0
18	Sa.	4. 25. 47. 11	9.52.11,5	12. 56. 26	3. 23,2	13,4
19	*Su.*	4. 26. 45. 1	9.55.54,6	12. 36. 47	3. 9,8	13,8
20	M.	4. 27. 42. 52	9.59.37,3	12. 16. 57	2. 56,0	14,3
21	Tu.	4. 28. 40. 45	10. 3.19,5	11. 56. 55	2. 41,7	14,8
22	W.	4. 29. 38. 39	10. 7. 1,2	11. 36. 41	2. 26,9	15,2
23	Th.	5. 0. 36. 35	10.10.42,5	11. 16. 16	2. 11,7	15,7
24	F.	5. 1. 34. 32	10.14.23,3	10. 55. 41	1. 56,0	16,2
25	Sa.	5. 2. 32. 30	10.18. 3,6	10. 34. 56	1. 39,8	16,6
26	*Su.*	5. 3. 30. 30	10.21.43,6	10. 14. 0	1. 23,2	17,0
27	M.	5. 4. 28. 31	10.25.23,2	9. 52. 54	1. 6,2	17,4
28	Tu.	5. 5. 26. 33	10.29. 2,3	9. 31. 39	0. 48,8	17,7
29	W.	5. 6. 24. 36	10.32.41,0	9. 10. 16	0. 31,1	18,0
30	Th.	5. 7. 22. 40	10.36.19,5	8. 48. 44	0. 13,1	18,4
31	F.	5. 8. 20. 46	10.39.57,6	8. 27. 3	Sub. 5,3	18,8

Days of the Month.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	15. 49,0	1. 6,5	2. 23,6	0. 006215	0. 29. 26
7	15. 49,9	1. 6,0	2. 23,9	0. 005810	0. 29. 7
13	15. 51,0	1. 5,5	2. 24,3	0. 005364	0. 28. 48
19	15. 52,2	1. 5,0	2. 24,6	0. 004851	0. 28. 29
25	15. 53,4	1. 4,7	2. 25,0	0. 004264	0. 28. 10

Eclipſes of the SATELLITES of JUPITER.

I. Satellite. Emerſions.

Days	H. M. S.
1	10. 36. 12
3	5. 5. 9
4	23. 34. 7
6	18. 3. 8
8	12. 32. 7
10	7. 1. 12
12	1. 30. 18
13	19. 59. 21
15	14. 28. 33
17	8. 57. 40
19	3. 26. 50
20	21. 56. 4
22	16. 25. 16
24	10. 54. 30
26	5. 23. 48
27	23. 53. 1
29	18. 22. 18
30	12. 51. 37

II. Satellite.

Days	H. M. S.
2	12. 35. 3 I
2	14. 57. 5 E
6	1. 53. 2 I
6	4. 15. 12 E
9	15. 11. 9 I
9	17. 33. 28 E
13	4. 29. 27 I
13	6. 51. 56 E
16	17. 47. 55 I
16	20. 10. 32 E
20	7. 6. 29 I
20	9. 29. 14 E
23	20. 25. 18 I
23	22. 48. 10 E
27	9. 44. 9 I
27	12. 7. 10 E
30	23. 3. 7 I
31	1. 26. 18 E

III. Satellite.

Days	H. M. S.
3	3. 51. 25 I
3	5. 41. 8 E
10	7. 51. 22 I
10	9. 42. 6 E
17	11. 51. 48 I
17	13. 43. 32 E
24	15. 52. 37 I
24	17. 45. 21 E
31	19. 53. 47 I
31	21. 47. 27 E

IV. Satellite. Conj.

1	5. 55	Inf.
9	13. 26	Sup.
18	0. 0	Inf.
26	7*54	Sup.

AUGUST 1781.

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Passage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
Gr. El. 28^{d}. MERCURY. Inf. ☌ 10^{d}. $7^{h}\frac{1}{4}$.						
1	9. 17. 46	6. 11 S	4. 24. 45	4. 25 S	9. 7 N	0. 54
4	9. 27. 2	6. 38	4. 23. 13	4. 46	9. 17	0. 36
7	10. 6. 50	6. 55	4. 21. 4	4. 51	9. 54	0. 17
10	10. 17. 18	7. 0	4. 18. 37	4. 41	10. 48	23. 50
13	10. 28. 36	6. 50	4. 16. 15	4. 15	11. 56	23. 30
16	11. 10. 53	6. 21	4. 14. 24	3. 34	13. 7	23. 14
19	11. 24. 19	5. 29	4. 13. 24	2. 44	14. 12	23. 1
22	0. 9. 3	4. 12	4. 13. 31	1. 50	15. 2	22. 53
25	0. 25. 9	2. 28	4. 14. 49	0. 56	15. 30	22. 50
28	1. 12. 31	0. 24 S	4. 17. 17	0. 8 S	15. 32	22. 50
31	2. 0. 55	1. 50 N	4. 20. 48	0. 34 N	15. 6	22. 54
VENUS.						
1	5. 19. 28	3. 23 N	4. 25. 54	1. 29 N	14. 18 N	1. 7
7	5. 29. 12	3. 17	5. 3. 17	1. 28	11. 41	1. 12
13	6. 8. 54	3. 6	5. 10. 39	1. 24	8. 53	1. 17
19	6. 18. 35	2. 49	5. 18. 0	1. 18	5. 57	1. 22
25	6. 28. 14	2. 27	5. 25. 22	1. 9	2. 54	1. 27
MARS.						
1	10. 2. 45	1. 47 S	9. 15. 46	6. 7 S	28. 36 S	10. 21
7	10. 6. 29	1. 49	9. 14. 59	6. 0	28. 34	9. 55
13	10. 10. 14	1. 50	9. 14. 41	5. 48	28. 25	9. 31
19	10. 14. 0	1. 51	9. 14. 52	5. 34	28. 10	9. 9
25	10 17. 47	1. 51	9. 15. 32	5. 18	27. 49	8. 50
JUPITER. □ 10^{d}. 16^{h}.						
1	7. 28. 52	0. 51 N	7. 18. 5	0. 53 N	16. 23 S	6. 14
7	7. 29. 20	0. 50	7. 18. 27	0. 52	16. 30	5. 52
13	7. 29. 48	0. 50	7. 18. 55	0. 50	16. 39	5. 32
19	8. 0. 16	0. 49	7. 19. 29	0. 49	16. 50	5. 12
25	8. 0. 44	0. 49	7. 20. 8	0. 48	17. 2	4. 52
SATURN.						
1	8. 18. 26	1. 23 N	8. 13. 39	1. 28 N	21. 1 S	8. 1
7	8. 18. 37	1. 22	8. 13. 31	1. 27	21. 1	7. 37
13	8. 18. 48	1. 22	8. 13. 27	1. 26	21. 1	7. 13
19	8. 18. 59	1. 21	8. 13. 27	1. 24	21. 3	6. 51
25	8. 19. 9	1. 21	8. 13. 31	1. 23	21. 5	6. 29

AUGUST 1781.

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	W.	9. 6. 22. 3	9. 13. 1. 33	4. 37. 54 S	4.49.29 S
2	Th.	9. 19. 38. 2	9. 26. 11. 21	4. 57. 5	5. 0.41
3	F.	10. 2. 41. 19	10. 9. 7. 52	5. 0. 20	4.56. 8
4	Sa.	10. 15. 30. 52	10. 21. 50. 18	4. 48. 14	4.36.50
5	*Su.*	10. 28. 6. 5	11. 4. 18. 22	4. 22. 11	4. 4.31
6	M.	11. 10. 27. 12	11. 16. 32. 47	3. 44. 8	3.21.19
7	Tu.	11. 22. 35. 23	11. 28. 35. 21	2. 56. 22	2.29.36
8	W.	0. 4. 33. 2	0. 10. 28. 53	2. 1. 18	1.31.48
9	Th.	0. 16. 23. 23	0. 22. 17. 12	1. 1. 23 S	0.30.19 S
10	F.	0. 28. 10. 51	1. 4. 5. 1	0. 1. 4 N	0.32.32 N
11	Sa.	1. 10. 0. 16	1. 15. 57. 25	1. 3. 46	1.34.27
12	*Su.*	1. 21. 57. 3	1. 27. 59. 54	2. 4. 18	2.33. 3
13	M.	2. 4. 6. 32	2. 10. 17. 43	3. 0. 19	3.25.50
14	Tu.	2. 16. 33. 56	2. 22. 55. 42	3. 49. 11	4.10. 3
15	W.	2. 29. 23. 28	3. 5. 57. 34	4. 28. 4	4.42.51
16	Th.	3. 12. 38. 12	3. 19. 25. 30	4. 54. 2	5. 1.16
17	F.	3. 26. 19. 15	4. 3. 19. 13	5. 4. 17	5. 2.49
18	Sa.	4. 10. 24. 58	4. 17. 35. 56	4. 56. 42	4.45.50
19	*Su.*	4. 24. 51. 17	5. 2. 10. 11	4. 30. 15	4.10. 7
20	M.	5. 9. 31. 37	5. 16. 54. 41	3. 45. 41	3.17.24
21	Tu.	5. 24. 18. 16	6. 1. 41. 30	2. 45. 40	2.11.11
22	W.	6. 9. 3. 26	6. 16. 23. 23	1. 34. 31	0.56.25 N
23	Th.	6. 23. 40. 40	7. 0. 54. 50	0. 17. 36 N	0.21.19 S
24	F.	7. 8. 5. 27	7. 15. 12. 20	0. 59. 35 S	1.36.35
25	Sa.	7. 22. 15. 18	7. 29. 14. 20	2. 11. 48	2.44.43
26	*Su.*	8. 6. 9. 20	8. 13. 0. 27	3. 14. 50	3.41.53
27	M.	8. 19. 47. 40	8. 26. 31. 8	4. 5. 31	4.25.31
28	Tu.	9. 3. 10 54	9. 9. 47. 9	4. 41. 44	4.54. 0
29	W.	9. 16. 19. 54	9. 22. 49. 21	5. 2. 21	5. 6.38
30	Th.	9. 29. 15. 30	10. 5. 38. 30	5. 7. 2	5. 3.34
31	F.	10. 11. 58. 23	10. 18. 15. 16	4. 56. 25	4.45.43

AUGUST 1781.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Passage over Merid.	☽'s Right Ascen. at Noon.	☽'s Right Ascen. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	W.	13	10. 3	277. 11	284. 41	27. 57 S	27. 38 S
2	Th.	14	11. 1	292. 3	299. 15	26. 55	25. 51
3	F.	15	11. 53	306. 13	312. 59	24. 27	22. 45
4	Sa.	16	12. 42	319. 30	325. 47	20. 48	18. 36
5	*Su.*	17	13. 28	331. 51	337. 43	16. 15	13. 44
6	M.	18	14. 10	343. 24	348. 57	11. 7	8. 24
7	Tu.	19	14. 50	354. 22	359. 42	5. 39	2. 51 S
8	W.	20	15. 30	4. 58	10. 14	0. 3 S	2. 45 N
9	Th.	21	16. 9	15. 29	20. 48	5. 31 N	8. 13
10	F.	22	16. 51	26. 10	31. 38	10. 51	13. 24
11	Sa.	23	17. 35	37. 14	43. 0	15. 50	18. 8
12	*Su.*	24	18. 22	48. 58	55. 7	20. 17	22. 13
13	M.	25	19. 13	61. 30	68. 7	23. 57	25. 25
14	Tu.	26	20. 8	74. 58	82. 3	26. 36	27. 27
15	W.	27	21. 5	89. 18	96. 44	27. 56	28. 3
16	Th.	28	22. 4	104. 16	111. 50	27. 45	27. 2
17	F.	29	23. 3	119. 23	126. 55	25. 53	24. 19
18	Sa.	30	23. 59	134. 20	141. 36	22. 24	20. 7
19	*Su.*	1	☌	148. 44	155. 42	17. 29	14. 36
20	M.	2	0. 52	162. 32	169. 15	11. 29	8. 12
21	Tu.	3	1. 43	175. 51	182. 25	4. 48 N	1. 20 N
22	W.	4	2. 33	188. 57	195. 28	2. 9 S	5. 35 S
23	Th.	5	3. 24	202. 2	208. 40	8. 56	12. 8
24	F.	6	4. 17	215. 23	222. 15	15. 10	17. 57
25	Sa.	7	5. 11	229. 14	236. 23	20. 28	22. 41
26	*Su.*	8	6. 7	243. 39	251. 3	24. 33	26. 3
27	M.	9	7. 5	258. 33	266. 4	27. 9	27. 50
28	Tu.	10	8. 4	273. 35	281. 3	28. 7	27. 59
29	W.	11	9. 0	288. 24	295. 36	27. 28	26. 34
30	Th.	12	9. 53	302. 35	309. 22	25. 20	23. 47
31	F.	13	10. 43	315. 56	322. 15	21. 58	19. 54

AUGUST 1781.

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon. M. S.	Semid^{r}. ☽ at Midnight. M. S.	Hor. Par. ☽ at Noon. M. S.	Hor. Par. ☽ at Midnight. M. S.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
1	W.	15. 40	15. 36	57. 29	57. 14	4957	4976
2	Th.	15. 32	15. 27	56. 59	56. 43	4995	5015
3	F.	15. 23	15. 19	56. 28	56. 12	5035	5055
4	Sa.	15. 15	15. 11	55. 58	55. 42	5073	5094
5	*Su.*	15. 7	15. 3	55. 29	55. 15	5111	5129
6	M.	15. 0	14. 57	55. 2	54. 50	5146	5162
7	Tu.	14. 54	14. 52	54. 41	54. 33	5174	5185
8	W.	14. 50	14, 49	54. 26	54. 22	5194	5199
9	Th.	14. 48	14. 48	54. 19	54. 19	5203	5203
10	F.	14. 49	14. 50	54. 22	54. 26	5199	5194
11	Sa.	14. 52	14. 54	54. 33	54. 42	5185	5173
12	*Su.*	14. 58	15. 2	54. 54	55. 9	5157	5137
13	M.	15. 6	15. 11	55. 26	55. 45	5115	5090
14	Tu.	15. 17	15. 23	56, 7	56. 29	5062	5033
15	W.	15. 30	15. 37	56. 54	57. 19	5002	4970
16	Th.	15. 44	15. 51	57. 45	58. 11	4937	4905
17	F.	15. 58	16. 5	58. 36	59. 0	4874	4844
18	Sa.	16. 11	16. 16	59. 22	59. 43	4817	4792
19	*Su.*	16. 21	16. 25	60. 0	60. 14	4771	4754
20	M.	16. 28	16. 30	60. 25	60. 32	4741	4733
21	Tu.	16. 31	16. 31	60. 36	60. 35	4728	4729
22	W.	16. 29	16. 28	60. 31	60. 24	4734	4742
23	Th.	16. 25	16. 22	60. 14	60. 2	4754	4769
24	F.	16. 17	16. 13	59. 47	59. 32	4787	4805
25	Sa.	16. 8	16. 4	59. 14	58. 57	4827	4848
26	*Su.*	15. 59	15. 54	58. 38	58. 20	4871	4893
27	M.	15. 48	15. 43	58. 1	57. 42	4917	4941
28	Tu.	15. 38	15. 34	57. 24	57. 7	4964	4985
29	W.	15. 29	15. 25	56. 50	56. 33	5006	5028
30	Th.	15. 20	15. 16	56. 17	56. 2	5049	5068
31	F.	15. 12	15. 9	55. 49	55. 35	5085	5103

Distances of ☽'s Center from Sun, and from Stars east of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Fomal-haut.	55. 14. 30	53. 41. 10	52. 8. 18	50. 35. 53	49. 3. 57	47. 32. 34	46. 1. 50	44.31.45
2		43. 2. 19	41. 33. 38	40. 5. 45	38. 38. 42	37. 12. 26			
2	α Arietis.					99. 8. 5	97. 31. 59	95. 56. 6	94.20.24
3		92. 44. 55	91. 9. 37	89. 34. 32	87. 59. 39	86. 24. 59	84. 50. 32	83. 16. 18	81.42.17
4		80. 8. 29	78. 34. 54	77. 1. 33	75. 28. 25	73. 55. 31	72. 22. 51	70. 50. 25	69.18.13
5		67. 46. 14	66. 14. 29	67. 42. 58	63. 11. 41	61. 40. 38	60. 9. 50	58. 39. 16	57. 8.57
6		55. 38. 52	54. 9. 2	52. 39. 26	51. 10. 5	49. 40. 58			
6	Aldeba-ran.					79. 55. 29	78. 25. 35	76. 55. 51	75.26.18
7		73. 56. 54	72. 27. 40	70. 58. 36	69. 29. 41	68. 0. 55	66. 32. 18	65. 3. 50	63.35.31
8		62. 7. 20	60. 39. 17	59. 11. 22	57. 43. 35	56. 15. 56	54. 48. 24	53. 21. 0	51.53.42
9		50. 26. 31	48. 59. 26	47. 32. 28	46. 5. 36	44. 38. 51	43. 12. 12	41. 45. 41	40.19.17
10		38. 53. 1	37. 26. 50	36. 0. 50	34. 35. 1	33. 9. 22	31. 43. 51	30. 18. 39	28.53.44
11		27. 29. 8	26. 4. 41	24. 40. 51	23. 17. 40	21. 55. 6	20. 33. 25	19. 12. 52	17.53 28
12		16. 35. 9							
9	The Sun.	120. 44. 8	119. 22. 55	118. 1. 44	116. 40. 33	115. 19. 23	113. 58. 13	112. 37. 2	111.15.50
10		109. 54. 36	108. 33. 20	107. 12. 0	105. 50. 38	104. 29. 12	103. 7. 45	101. 46. 8	100.24.28
11		99. 2. 42	97. 40. 49	96. 18. 48	94. 56. 39	93. 34. 23	92. 11. 58	90. 49. 23	89.26.39

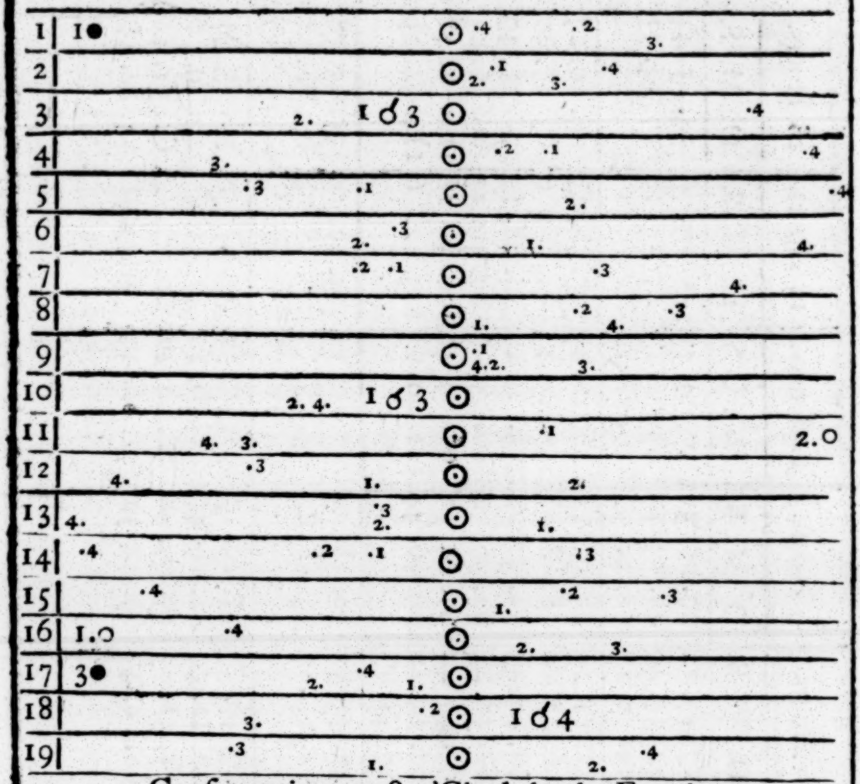
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
12	The Sun.	88. 3. 44	86. 40. 38	85. 17. 19	83. 53. 49	82. 30. 6	81. 6. 11	79. 42. 1	78. 17. 37
13		76. 52. 58	75. 28. 3	74. 2. 51	72. 37. 23	71. 11. 38	69. 45. 36	68. 19. 15	66. 52. 37
14		65. 25. 40	63. 58. 24	62. 30. 48	61. 2. 52	59. 34. 37	58. 6. 1	56. 37. 4	55. 7. 46
15		53. 38. 6	52. 8. 4	50. 37. 42	49. 6. 58	47. 35. 52	46. 4. 22	44. 32. 32	43. 0. 18
16		41. 27. 42							
20	Antares.					80. 6. 58	78. 16. 2	76. 25. 3	74. 34. 3
21		72. 43. 0	70. 51. 57	69. 0. 56	67. 9. 56	65. 18. 58	63. 28. 5	61. 37. 16	59. 46. 33
22		57. 55. 53	56. 5. 21	54. 14. 57	52. 24. 42	50. 34. 34	48. 44. 37	46. 54. 50	45. 5. 14
23		43. 15. 48	41. 26. 34	39. 37. 33	37. 48. 45	36. 0. 9	34. 11. 47	32. 23. 41	30. 35. 50
24		28. 48. 14							
24	α Aquilæ	82. 18. 24	80. 50. 9	79. 22. 21	77. 54. 58	76. 28. 1	75. 1. 35	73. 35. 40	72. 10. 18
25		70. 45. 32	69. 21. 20	67. 57. 50	66. 35. 1	65. 12. 55	63. 51. 36	62. 31. 9	61. 11. 33
26		59. 52. 50							
26	Fomal-haut.	83. 49. 38	82. 10. 53	80. 32. 26	78. 54. 18	77. 16. 29	75. 38. 59	74. 1. 48	72. 24. 58
27		70. 48. 27	69. 12. 15	67. 36. 26	66. 0. 58	64. 25. 52	62. 51. 9	61. 16. 50	59. 42. 56
28		58. 9. 26	56. 36. 20	55. 3. 43	53. 31. 34	51. 59. 54	50. 28. 43	48. 58. 7	47. 28. 5
29		45. 58. 38	44. 29. 44	43. 1. 35	41. 34. 9	40. 7. 29	38. 41. 40	37. 16. 50	35. 52. 56
30		34. 29. 57							
30	α Arietis.	96. 8. 21	94. 33. 55	92. 59. 41	91. 25. 38	89. 51. 46	88. 18. 5	86. 44. 36	85. 11. 17
31		83. 38. 10	82. 5. 13	80. 32. 27	78. 59. 52	77. 27. 28	75. 55. 15	74. 23. 12	72. 51. 21
S. 1		71. 19. 40							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

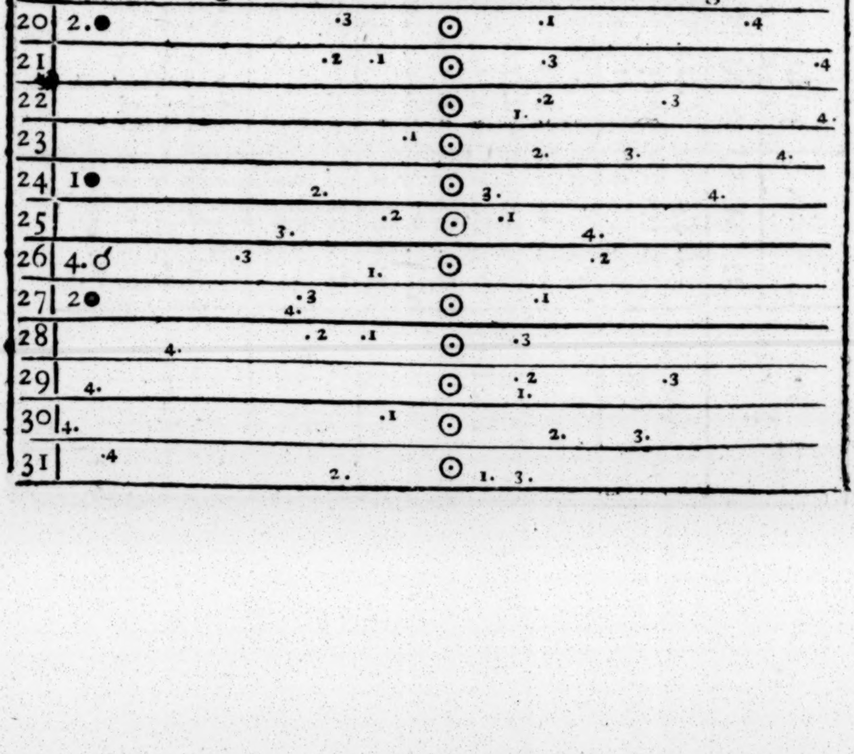
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Antares.	29. 33. 21	31. 13. 6	32. 52. 40	34. 32. 0	36. 11. 12	37. 50. 12	39. 29. 0	41. 7. 35
2		42. 46. 0	44. 24. 12	46. 2. 13	47. 40. 1	49. 17. 37	50. 54. 59	52. 32. 9	54. 9. 6
3		55. 45. 51	57. 22. 24	58. 58. 45	60. 34. 53	62. 10. 49	63. 46. 31	65. 22. 1	66. 57. 18
4		68. 32. 23	70. 7. 14	71. 41. 54	73. 16. 20	74. 50. 34	76. 24. 35	77. 58. 23	79. 31. 59
5		81. 5. 22	82. 38. 33	84. 11. 33	85. 44. 20	87. 16. 56	88. 49. 20	90. 21. 32	91. 53. 33
6		93. 25. 22	94. 57. 0	96. 28. 28	97. 59. 45	99. 30. 51	101. 1. 47	102. 32. 34	104. 3. 11
7		105. 33. 39							
7	α Aquilæ.	60. 47. 14	61. 56. 27	63. 6. 2	64. 15. 59	65. 26. 17	66. 36. 54	67. 47. 48	68. 58. 57
8		70. 10. 23	71. 22. 1	72. 33. 50	73. 45. 50	74. 58. 2	76. 10. 23	77. 22. 50	78. 35. 25
9		79. 48. 6							
9	Fomal-haut.	48. 46. 33	50. 8. 45	51. 31. 8	52. 53. 44	54. 16. 30	55. 39. 29	57. 2. 41	58. 26. 6
10		59. 49. 43	61. 13. 28	62. 37. 26	64. 1. 32	65. 25. 52	66. 50. 19	68. 14. 56	69. 39. 44
11		71. 4. 42	72. 29. 51	73. 55. 12	75. 20. 43	76. 46. 26	78. 12. 20	79. 38. 25	81. 4. 42
12		82. 31. 10							
12	α Arietis.	18. 57. 8	20. 16. 46	21. 37. 36	22. 59. 44	24. 23. 5	25. 47. 30	27. 12. 51	28. 39. 4
13		30. 6. 11	31. 33. 52	33. 2. 11	34. 31. 8	36. 0. 43	37. 30. 47	39. 1. 23	40. 32. 29
14		42. 4. 8	43. 36. 14	45. 8. 49	46. 41. 52	48. 15. 24	49. 49. 24	51. 23. 50	52. 58. 43
15		54. 34. 3							

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
15	Aldebaran.	24. 43. 4	26. 14. 42	27. 47. 12	29. 20. 35	30. 54. 52	32. 29. 56	34. 5. 44	35. 42. 14
16		37. 19. 28	38. 57. 16	40. 35. 40	42. 14. 39	43. 54. 13	45. 34. 18	47. 14. 53	48. 55. 59
17		50. 37. 35	52. 19. 40	54. 2. 11	55. 45. 9	57. 28. 34			
22	The Sun.	39. 26. 22	41. 8. 59	42. 51. 29	44. 33. 54	46. 16. 13	47. 58. 25	49. 40. 27	51. 22. 22
23		53. 4. 7	54. 45. 42	56. 27. 6	58. 8. 18	59. 49. 19	61. 30. 6	63. 10. 40	64. 51. 0
24		66. 31. 8	68. 11. 3	69. 50. 43	71. 30. 8	73. 9. 19	74. 48. 12	76. 26. 49	78. 5. 11
25		79. 43. 16	81. 21. 7	82. 58. 43	84. 36. 2	86. 13. 6	87. 49. 53	89. 26. 23	91. 2. 37
26		92. 38. 35	94. 14. 17	95. 49. 44	97. 24. 54	98. 59. 48	100. 34. 26	102. 8. 48	103. 42. 55
27		105. 16. 45	106. 50. 20	108. 23. 40	109. 56. 44	111. 29. 33	113. 2. 6	114. 34. 25	116. 6. 28
28		117. 38. 17	119. 9. 51	120. 41. 11					
26	Spica ♍	45. 19. 45	47. 2. 47	48. 45. 33	50. 28. 3	52. 10. 15	53. 52. 15	55. 33. 58	57. 15. 25
27		58. 56. 37	60. 37. 34	62. 18. 17	63. 58. 44	65. 38. 57	67. 18. 54	68. 58. 38	70. 38. 5
28		72. 17. 19							
28	Antares.	26. 22. 51	28. 1. 52	29. 40. 39	31. 19. 13	32. 57. 32	34. 35. 38	36. 13. 31	37. 51. 11
29		39. 28. 38	41. 5. 53	42. 42. 54	44. 19. 45	45. 56. 22	47. 32. 47	49. 9. 0	50. 45. 0
30		52. 20. 49	53. 56. 27	55. 31. 53	57. 7. 8	58. 42. 12	60. 17. 4	61. 51. 45	63. 26. 16
31		65. 0. 35	66. 34. 45	68. 8. 43	69. 42. 32	71. 16. 10	72. 49. 38	74. 22. 56	75. 56. 6
S. 1		77. 29. 3							

Configurations of the SATELLITES of JUPITER at Half an Hour paſt 8 o' Clock in the Evening.



Configurations at 8 o'Clock in the Evening.



SEPTEMBER 1781.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Sa.	Giles.
2	*Su.*	*12th Sunday after Trinity.*
3	M.	[Lond. burnt 1666, ☉.S.
4	Tu.	
5	W.	
6	Th.	
7	F.	Enurchus.
8	Sa.	Nativity of B. V. Mary.
9	*Su.*	*13th Sunday after Trinity.*
10	M.	
11	Tu.	
12	W.	
13	Th.	
14	F.	Holy Croſs.
15	Sa.	
16	*Su.*	*14th Sunday after Trinity.*
17	M.	Lambert.
18	Tu.	
19	W.	
20	Th.	
21	F.	*St. Matthew.*
22	Sa.	*K.Geo.*III. *crown'd* 1761.
23	*Su.*	*15th Sunday after Trinity.*
24	M.	
25	Tu.	
26	W.	St. Cyprian.
27	Th.	
28	F.	[*born.*
29	Sa.	*St. Mich. Prs. Char. Aug.*
30	*Su.*	*16th Sunday after Trinity.* [S. Jerome.

Phaſes of the Moon.

	D.	H.	M
Full Moon —	2.	7.	25
Laſt Quarter —	10.	12.	11
New Moon —	17.	11.	5
Firſt Quarter —	24.	3.	34

Other Phenomena.

D.
2. ☾ 1 ad ψ ♒ Im. 13ʰ. 12′. * 11′ N. of ☽'s cent. Em. 14ʰ. 15′½. * 5′ N.
☾ 2 ad ψ ♒ Im. 14ʰ. 29′½. * 13′½ S. of ☽'s cent. Em. 14ʰ. 42′. * 14′¾ S.
☾ 3 ad ψ ♒ 13ʰ. 42′
4. ☿ α ♌ diff. Lat. 47′.
5. ☾ ζ ♓ 8ʰ. 9′.
7. ☾ δ ♈ 23ʰ. 10′.
10. ☾ β ♉ 14ʰ. 5′.
12. ☾ ι ♊ 15ʰ. 23′.
13. ☾ 2 ad ψ ♋ 9ʰ. 48′.
15. ☾ η ♌ 10ʰ. 39′.
19. ☾ ♀ 13ʰ. 44′.
20. ☾ λ ♍ 1ʰ. 29′.
21. ☾ 1 ad ι ♎ 0ʰ. 22′.
☾ δ ♏ 19ʰ. 36′.
22. ☉ enters ♎ at 5ʰ. 14′.
☾ α ♏ 7ʰ. 45′.
24. ☾ φ ♐ 12ʰ. 59′.
☾ τ ♐ 21ʰ. 26′.
25. ♃ κ ♎ diff. Lat. 41′.
♀ λ ♍ diff. Lat. 38′.
27. ☾ ε ♑ 15ʰ. 49′.
29. ☾ 1 ad ψ ♒ 19ʰ. 1′.
☾ 2 ad ψ ♒ 19ʰ. 54′.
☾ 3 ad ψ ♒ 20ʰ. 2′.

SEPTEMBER 1781.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. North.	Equat. of Time. Sub.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Sa.	5. 9. 18. 54	10. 43.35,4	8. 5. 14	0. 24,1	
2	*Su.*	5. 10. 17. 3	10. 47.12,8	7. 43. 17	0. 43,1	19,0
3	M.	5. 11. 15. 13	10. 50.50,0	7. 21. 14	1. 2,4	19,3
4	Tu.	5. 12. 13. 26	10. 54.27,0	6. 59. 2	1. 22,0	19,6
5	W.	5. 13. 11. 40	10. 58. 3,7	6. 36. 44	1. 41,7	19,7
6	Th.	5. 14. 9. 57	11. 1.40,2	6. 14. 19	2. 1,7	20,0
7	F.	5. 15. 8. 15	11. 5.16,6	5. 51. 48	2. 21,9	20,2
8	Sa.	5. 16. 6. 36	11. 8.52,8	5. 29. 11	2. 42,2	20,3
9	*Su.*	5. 17. 4. 59	11. 12.28,8	5. 6. 28	3. 2,7	20,5
10	M.	5. 18. 3. 24	11. 16. 4,7	4. 43. 40	3. 23,3	20,6
11	Tu.	5. 19. 1. 51	11. 19.40,5	4. 20. 47	3. 43,9	20,6
12	W.	5. 20. 0. 20	11. 23.16,3	3. 57. 49	4. 4,7	20,8
13	Th.	5. 20. 58. 52	11. 26.52,0	3. 34. 46	4. 25,5	20,8
14	F.	5. 21. 57. 26	11. 30.27,6	3. 11. 40	4. 46,4	20,9
15	Sa.	5. 22. 56. 2	11. 34. 3,2	2. 48. 30	5. 7,3	20,9
16	*Su.*	5. 23. 54. 40	11. 37.38,8	2. 25. 16	5. 28,2	20,9
17	M.	5. 24. 53. 20	11. 41.14,4	2. 2. 0	5. 49,1	20,9
18	Tu.	5. 25. 52. 2	11. 44.50,0	1. 38. 41	6. 10,0	20,9
19	W.	5. 26. 50. 47	11. 48.25,6	1. 15. 20	6. 30,9	20,9
20	Th.	5. 27. 49. 32	11. 52. 1,3	0. 51. 57	6. 51,7	20,8
21	F.	5. 28. 48. 21	11. 55.37,1	0. 28. 32	7. 12,4	20,7
22	Sa.	5. 29. 47. 10	11. 59.12,9	0. 5. 7	7. 33,0	20,6
				SOUTH.		
23	*Su.*	6. 0. 46. 2	12. 2.48,9	0. 18. 20	7. 53,6	20,6
24	M.	6. 1. 44. 55	12. 6.25,0	0. 41. 47	8. 14,0	20,4
25	Tu.	6. 2. 43. 49	12. 10. 1,2	1. 5. 13	8. 34,3	20,3
26	W.	6. 3. 42. 46	12. 13.37,5	1. 28. 40	8. 54,4	20,1
27	Th.	6. 4. 41. 44	12. 17.14,1	1. 52. 7	9. 14,4	20,0
28	F.	6. 5. 40. 44	12. 20.50,8	2. 15. 31	9. 34,1	19,7
29	Sa.	6. 6. 39. 45	12. 24.27,8	2. 38. 54	9. 53,6	19,5
30	*Su.*	6. 7. 38. 49	12. 28. 5,0	3. 2. 17	10. 12,9	19,3

Days.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	15. 55,0	1. 4,3	2. 25,4	0,003515	0. 27. 48
7	15. 56,5	1. 4,0	2. 25,8	0,002856	0. 27. 29
13	15. 58,0	1. 4,0	2. 26,3	0,002178	0. 27. 10
19	15. 59,6	1. 4,0	2. 26,8	0,001459	0. 26. 51
25	16. 1,2	1. 4,1	2. 27,3	0,000703	0. 26. 32

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite. Emerſions.		II. Satellite.			III. Satellite.		
Days	H. M. S.	Days	H. M. S.		Days	H. M. S.	
2	7. 20. 57	3	12. 22. 5	I.	7	23. 54. 58	I.
4	1. 50. 18	3	14. 45. 25	E.	8	1. 49. 46	E.
5	20. 19. 39	7	1. 41. 15	I.	15	3. 56. 19	I.
7	14. 49. 1	7	4. 4. 41	E.	15	5. 52. 7	E.
9	9. 18. 19	10	15. 0. 31	I.	22	7. 57. 29	I.
11	3. 47. 42	10	17. 24. 5	E.	22	9. 54. 28	E.
12	22. 17. 0	14	4. 19. 50	I.	29	11. 58. 47	I.
14	16. 46. 23	14	6. 43. 32	E.	29	13. 56. 43	E.
16	11. 15. 41	17	17. 39. 9	I.			
18	5. 45. 1	17	20. 3. 3	E.	IV. Satellite.		Conj.
20	0. 14. 23	21	6*58. 29	I.			
21	18. 43. 41	21	9. 22. 31	E.	3	18. 54	Inf.
23	13. 13. 0	24	20. 17. 52	I.	12	3. 5	Sup.
25	7. 42. 20	24	22. 42. 2	E.	20	14. 26	Inf.
27	2. 11. 36	28	12. 1. 31	E.	28	22. 51	Sup.
28	20. 40. 52						
30	15. 10. 8						

SEPTEMBER 1781. IV.

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Passage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
			MERCURY. Sup. ☌ 22^d. 3^h.			
1	2. 7. 11	2. 34 N	4. 22. 10	0. 46 N	14. 50 N	22. 57
4	2. 26. 7	4. 33	4. 26. 47	1. 15	13. 46	23. 6
7	3. 14. 42	6. 0	5. 1. 56	1. 35	12. 17	23. 16
10	4. 2. 21	6. 49	5. 7. 24	1. 46	10. 27	23. 26
13	4. 18. 42	6. 59	5. 13. 1	1. 49	8. 22	23. 37
16	5. 3. 36	6. 40	5. 18. 39	1. 46	6. 7	23. 46
19	5. 17. 8	5. 59	5. 24. 13	1. 38	3. 48	23. 55
22	5. 29. 26	5. 4	5. 29. 41	1. 25	1. 27 N	0. 1
25	6. 10. 41	4. 2	6. 5. 2	1. 10	0. 56 S	0. 10
28	6. 21. 4	2. 56	6. 10. 14	0. 53	3. 15	0. 18
30	6. 27. 37	2. 11	6. 13. 38	0. 40	4. 46	0. 23
			VENUS.			
1	7. 9. 28	1. 57 N	6. 3. 56	0. 56 N	0. 42 S	1. 32
7	7. 19. 3	1. 28	6. 11. 17	0. 43	3. 48	1. 37
13	7. 28. 37	0. 56	6. 18. 37	0. 28	6. 52	1. 43
19	8. 8. 10	0. 23 N	6. 25. 56	0. 12 N	9. 51	1. 48
25	8. 17. 41	0. 11 S	7. 3. 14	0. 6 S	12. 42	1. 54
			MARS.			
1	10. 22. 13	1. 51 S	9. 16. 56	4. 58 S	27. 18 S	8. 32
7	10. 26. 1	1. 50	9. 18. 34	4. 40	26. 48	8. 17
13	10. 29. 50	1. 49	9. 20. 33	4. 21	26. 12	8. 4
19	11. 3. 38	1. 47	9. 22. 53	4. 3	25. 31	7. 53
25	11. 7. 27	1. 45	9. 25. 2[illegible]	3. 46	24. 46	7. 42
			JUPITER.			
1	8. 1. 18	0. 48 N	7. 21. 0	0. 46 N	17. 17 S	4. 31
7	8. 1. 46	0. 48	7. 21. 49	0. 45	17. 31	4. 13
13	8. 2. 14	0. 47	7. 22. 44	0. 44	17. 46	3. 55
19	8. 2. 43	0. 47	7. 23. 41	0. 43	18. 2	3. 37
25	8. 3. 11	0. 46	7. 24. 42	0. 42	18. 18	3. 20
			SATURN. □ 5^d. $14^h\frac{1}{4}$.			
1	8. 19. 22	1. 21 N	8. 13. 38	1. 22 N	21. 7 S	6. 5
7	8. 19. 33	1. 20	8 13. 49	1. 20	21. 9	5. 44
13	8. 19. 44	1. 20	8. 14. 2	1. 19	21. 12	5. 24
19	8. 19. 54	1. 19	8. 14. 19	1. 18	21. 15	5. 3
25	8. 20. 5	1. 19	8. 14. 39	1. 17	21. 19	4. 43

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	Sa.	10. 24. 29. 12	11. 0. 40. 21	4. 31. 40 S	4.14.30 S
2	*Su.*	11. 6. 48. 42	11. 12. 54. 27	3. 54. 30	3.31.55
3	M.	11. 18. 57. 43	11. 24. 58. 41	3. 7. 2	2.40.13
4	Tu.	0. 0. 57. 32	0. 6. 54. 34	2. 11. 42	1.41.52
5	W.	0. 12. 50. 3	0. 18. 44. 20	1. 11. 0	0.39.27 S
6	Th.	0. 24. 37. 49	1. 0. 30. 56	0. 7. 29 S	0.24.33 N
7	F.	1. 6. 24. 9	1. 12. 18. 1	0. 56. 22 N	1.27.40
8	Sa.	1. 18. 13. 3	1. 24. 9. 53	1. 58. 9	2.27.31
9	*Su.*	2. 0. 9. 5	2. 6. 11. 18	2. 55. 29	3.21.45
10	M.	2. 12. 17. 7	2. 18. 27. 13	3. 45. 58	4. 7.52
11	Tu.	2. 24. 42. 8	3. 1. 2. 28	4. 27. 7	4.43.24
12	W.	3. 7. 28. 44	3. 14. 1. 23	4. 56. 23	5. 5.44
13	Th.	3. 20. 40. 43	3. 27. 27. 4	5. 11. 11	5.12.25
14	F.	4. 4. 20. 26	4. 11. 20. 49	5. 9. 13	5. 1.21
15	Sa.	4. 18. 27. 58	4. 25. 41. 30	4. 48. 46	4.31.25
16	*Su.*	5. 3. 0. 39	5. 10. 24. 47	4. 9. 24	3.42.59
17	M.	5. 17. 52. 51	5. 25. 23. 49	3. 12. 30	2.38.29
18	Tu.	6. 2. 56. 27	6. 10. 29. 37	2. 1. 31	1.22.20
19	W.	6. 18. 2. 4	6. 25. 32. 47	0. 41. 45 N	0. 0.32 N
20	Th.	7. 3. 0. 42	7. 10. 25. 0	0. 40. 27 S	1.20.26 S
21	F.	7. 17. 45. 0	7. 25. 0. 6	1. 58. 44	2.34.41
22	Sa.	8. 2. 9. 57	8. 9. 14. 19	3. 7. 46	3.37.32
23	*Su.*	8. 16. 13. 2	8. 23. 6. 11	4. 3. 40	4.25.53
24	M.	8. 29. 53. 46	9. 6. 36. 2	4. 44. 4	4.58. 6
25	Tu.	9. 13. 13. 6	9. 19. 45. 19	5. 7. 57	5.13.41
26	W.	9. 26. 12. 54	10. 2. 36. 14	5. 15. 20	5.13. 4
27	Th.	10. 8. 55. 32	10. 15. 11. 13	5. 6. 59	4.57.17
28	F.	10. 21. 23. 32	10. 27. 32. 49	4. 44. 10	4.27.52
29	Sa.	11. 3. 39. 21	11. 9. 43. 25	4. 8. 37	3.46.40
30	*Su.*	11. 15. 45. 15	11. 21. 45. 13	3. 22. 17	2.55.48

SEPTEMBER 1781. VI.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſsage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſcen. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	Sa.	14	11. 31	328. 22	334. 18	17. 38 S	15. 13 S
2	*Su.*	15	12. 14	340. 2	345. 37	12. 39	9. 59
3	M.	16	12. 55	351. 5	356. 27	7. 14	4. 27 S
4	Tu.	17	13. 34	1. 45	7. 1	1. 38 S	1. 11 N
5	W.	18	14. 14	12. 16	17. 32	3. 59 N	6. 44
6	Th.	19	14. 54	22. 51	28. 15	9. 26	12. 3
7	F.	20	15. 37	33. 45	39. 23	14. 33	16. 56
8	Sa.	21	16. 22	45. 10	51. 8	19. 10	21. 13
9	*Su.*	22	17. 11	57. 18	63. 40	23. 4	24. 41
10	M.	23	18. 4	70. 15	77. 2	26. 2	27. 5
11	Tu.	24	18. 59	84. 2	91. 11	27. 48	28. 10
12	W.	25	19. 57	98. 28	105. 50	28. 11	27. 48
13	Th.	26	20. 55	113. 15	120. 40	27. 0	25. 48
14	F.	27	21. 51	128. 1	135. 18	24. 12	22. 13
15	Sa.	28	22. 46	142. 29	149. 33	19. 54	17. 14
16	*Su.*	29	23. 38	156. 30	163. 21	14. 18	11. 7
17	M.	1	☌	170. 8	176. 50	7. 45	4. 15 N
18	Tu.	2	0. 30	183. 30	190. 11	0. 41 N	2. 54 S
19	W.	3	1. 22	196. 54	203. 41	6. 27 S	9. 53
20	Th.	4	2. 15	210. 34	217. 33	13. 9	16. 14
21	F.	5	3. 10	224. 41	231. 58	19. 2	21. 32
22	Sa.	6	4. 8	239. 24	246. 56	23. 41	25. 27
23	*Su.*	7	5. 8	254. 34	262. 14	26. 48	27. 43
24	M.	8	6. 8	269. 53	277. 28	28. 12	28. 16
25	Tu.	9	7. 6	284. 56	292. 14	27. 55	27. 11
26	W.	10	8. 1	299. 20	306. 12	26. 5	24. 41
27	Th.	11	8. 52	312. 49	319. 13	22. 58	21. 2
28	F.	12	9. 38	325. 23	331. 21	18. 52	16. 32
29	Sa.	13	10. 22	337. 7	342. 44	14. 2	11. 26
30	*Su.*	14	11. 3	348. 12	353. 35	8. 44	5. 58

VII. SEPTEMBER 1781.

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon.	Semid^{r}. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	Sa.	15. 5	15. 2	55. 22	55. 10	5120	5136
2	*Su.*	14. 59	14. 56	54. 58	54. 48	5152	5165
3	M.	14. 53	14. 51	54. 39	54. 31	5177	5187
4	Tu.	14. 49	14. 48	54. 24	54. 18	5197	5205
5	W.	14. 47	14. 46	54. 15	54. 12	5209	5213
6	Th.	14. 46	14. 46	54. 12	54. 13	5213	5211
7	F.	14. 47	14. 49	54. 16	54. 21	5207	5201
8	Sa.	14. 50	14. 53	54. 28	54. 38	5191	5178
9	*Su.*	14. 56	15. 1	54. 50	55. 5	5162	5142
10	M.	15. 5	15. 10	55. 22	55. 41	5120	5095
11	Tu.	15. 16	15. 23	56. 2	56. 26	5068	5037
12	W.	15. 29	15. 37	56. 51	57. 18	5005	4971
13	Th.	15. 44	15. 52	57. 45	58. 14	4937	4901
14	F.	16. 0	16. 8	58. 42	59. 11	4866	4831
15	Sa.	16. 15	16. 22	59. 37	60. 2	4799	4769
16	*Su.*	16. 28	16. 33	60. 24	60. 43	4742	4719
17	M.	16. 37	16. 40	60. 57	61. 9	4703	4689
18	Tu.	16. 41	16. 42	61. 15	61. 17	4682	4679
19	W.	16. 41	16. 39	61. 13	61. 6	4684	4692
20	Th.	16. 36	16. 32	60. 55	60. 40	4705	4723
21	F.	16. 27	16. 21	60. 22	60. 1	4745	4770
22	Sa.	16. 15	16. 8	59. 38	59. 14	4798	4827
23	*Su.*	16. 2	15. 55	58. 49	58. 24	4858	4889
24	M.	15. 48	15. 42	58. 0	57. 36	4918	4949
25	Tu.	15. 35	15. 29	57. 13	56. 50	4977	5006
26	W.	15. 24	15. 18	56. 30	56. 10	5032	5058
27	Th.	15. 13	15. 9	55. 52	55. 36	5081	5102
28	F.	15. 5	15. 1	55. 21	55. 8	5122	5138
29	Sa.	14. 58	14. 55	54. 56	54. 45	5154	5169
30	*Su.*	14. 52	14. 50	54. 35	54. 27	5182	5193

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	*α* Arietis.	71. 19. 40	69. 48. 9	68. 16. 49	66. 45. 40	65. 14. 43	63. 43. 57	62. 13. 23	60. 43. 0
2		59. 12. 48	57. 42. 48	56. 12. 59	54. 43. 22	53. 13. 56			
2	Aldebaran.					83. 31. 52	82. 1. 53	80. 32. 2	79. 2. 20
3		77. 32. 46	76. 3. 20	74. 34. 2	73. 4. 53	71. 35. 52	70. 6. 59	68. 38. 14	67. 9. 37
4		65. 41. 8	64. 12. 46	62. 44. 32	61. 16. 26	59. 48. 28	58. 20. 37	56. 52. 54	55. 25. 18
5		53. 57. 50	52. 30. 29	51. 3. 16	49. 36. 11	48. 9. 13	46. 42. 23	45. 15. 42	43. 49. 9
6		42. 22. 45	40. 56. 29	39. 30. 24	38. 4. 30	36. 38. 47	35. 13. 13	33. 47. 55	32. 22. 53
7		30. 58. 6	29. 33. 40	28. 9. 34	26. 45. 52	25. 22. 34			
7	Pollux.					67. 53. 9	66. 24. 16	64. 55. 18	63. 26. 15
8		61. 57. 7	60. 27. 53	58. 58. 33	57. 29. 5	55. 59. 31	54. 29. 49	52. 59. 58	51. 29. 58
9		49. 59. 49	48. 29. 30	46. 58. 59	45. 28. 18	43. 57. 26	42. 26. 21	40. 55. 4	39. 23. 33
10		37. 51. 49	36. 19. 50	34. 47. 35	33. 15. 5	31. 42. 19			
7	The Sun.							120. 35. 45	119. 14. 10
8		117. 52. 29	116. 30. 41	115. 8. 47	113. 46. 45	112. 24. 35	111. 2. 18	109. 39. 52	108. 17. 16
9		106. 54. 32	105. 31. 36	104. 8. 29	102. 45. 11	101. 21. 41	99. 57. 59	98. 34. 4	97. 9. 54
10		95. 45. 31	94. 20. 53	92. 55. 59	91. 30. 49	90. 5. 23	88. 39. 40	87. 13. 40	85. 47. 21
11		84. 20. 45	82. 53. 49	81. 26. 32	79. 58. 56	78. 31. 0	77. 2. 42	75. 34. 2	74. 5. 1

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
12	The Sun.	72. 35. 37	71. 5. 50	69. 35. 39	68. 5. 5	66. 34. 8	65. 2. 46	63. 30. 59	61.58.47
13		60. 26. 10	58. 53. 7	57. 19. 38	55. 45. 43	54. 11. 23	52. 36. 36	51. 1. 23	49.25.44
14		47. 49. 39	46. 13. 7	44. 36. 10	42. 58. 47	41. 20. 59	39. 42. 46		
19	Antares.	48. 54. 46	47. 1. 26	45. 8. 15	43. 15. 12	41. 22. 20	39. 29. 38	37. 37. 8	35.44.51
20		33. 52. 47	32. 0. 58	30. 9. 23	28. 18. 6	26. 27. 5			
20	α Aquilæ.					80. 27. 48	78. 57. 14	77. 27. 10	75.57.35
21		74. 28. 35	73. 0. 10	71. 32. 25	70. 5. 23	68. 39. 2	67. 13. 29	65. 48. 45	64.24.52
22		63. 1. 55							
22	Fomal-haut.	87. 35. 23	85. 53. 11	84. 11. 24	82. 30. 0	80. 49. 0	79. 8. 25	77. 28. 14	75.48.30
23		74. 9. 10	72. 30. 16	70. 51. 50	69. 13. 51	67. 36. 19	65. 59. 16	64. 22. 42	62.46.39
24		61. 11. 4	59. 35. 59	58. 1. 26	56. 27. 26	54. 53. 59	53. 21. 5	51. 48. 47	50.17. 7
25		48. 46. 3	47. 15. 36	45. 45. 52	44. 16. 52	42. 48. 37	41. 21. 6	39. 54. 30	38.28.50
26		37. 4. 8	35. 40. 30	34. 17. 59	32. 56. 40	31. 36. 35			
26	α Arietis.					92. 52. 25	91. 18. 49	89. 45. 26	88.12.17
27		86. 39. 21	85. 6. 38	83. 34. 9	82. 1. 51	80. 29. 47	78. 57. 54	77. 26. 14	75.54.45
28		74. 23. 28	72. 52. 22	71. 21. 27	69. 50. 43	68. 20. 10	66. 49. 48	65. 19. 37	63.49.36
29		62. 19. 46	60. 50. 6	59. 20. 36	57. 51. 16	56. 22. 6			
29	Aldeba-ran.					86. 40. 34	85. 11. 2	83. 41. 36	82.12.17
30		80. 43. 4	79. 13. 57	77. 44. 57	76. 16. 3	74. 47. 16	73. 18. 35	71. 50. 0	70.21.32
O. 1		68. 53. 10							

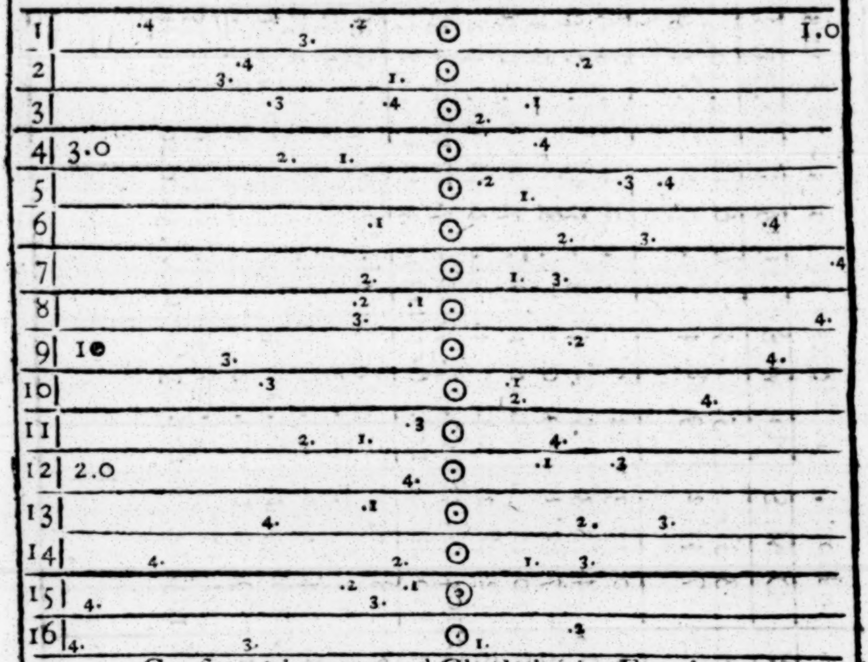
O

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

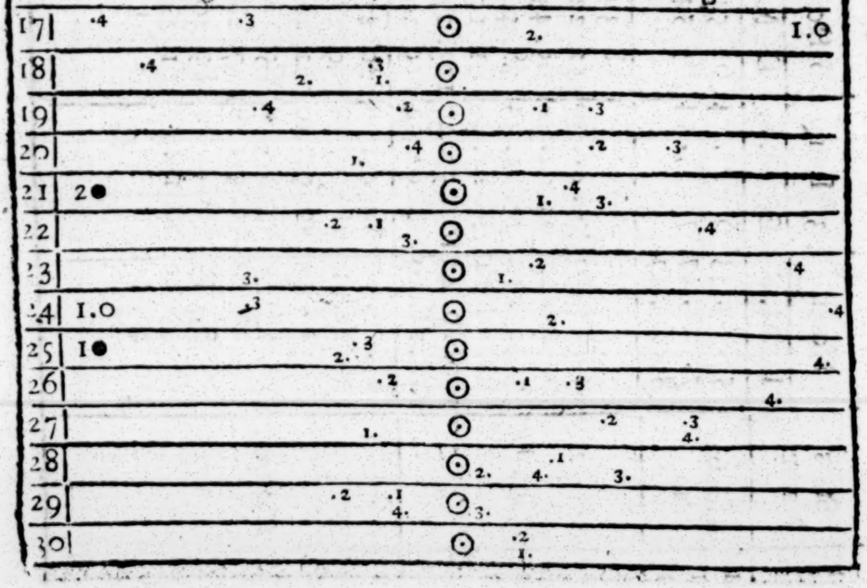
Days.	Stars Names.	Noon. D. M. S.	3 Hours. D. M. S.	6 Hours. D. M. S.	9 Hours. D. M. S.	12 Hours. D. M. S.	15 Hours. D. M. S.	18 Hours. D. M. S.	21 Hours. D. M. S.
1	Antares.	77. 29. 2	79. 1. 53	80. 34. 33	82. 7. 4	83. 39. 25	85. 11. 37	86. 43. 39	88.15.33
2		89. 47. 18	91. 18. 54	92. 50. 22	94. 21. 41	95. 52. 53	97. 23. 56	98. 54. 51	100.25.39
3		101. 56. 19	103. 26. 51	104. 57. 16	106. 27. 33	107. 57. 44			
3	α Aquilæ.					62. 34. 7	63. 43. 49	64. 53. 48	66. 4. 8
4		67. 14. 49	68. 25. 47	69. 37. 2	70. 48. 30	72. 0. 12	73. 12. 5	74. 24. 9	75.36.22
5		76. 48. 45	78. 1. 15	79. 13. 51	80. 26. 33	81. 39. 21	82. 52. 13	84. 5. 8	85.18. 6
6		86. 31. 6							
6	Fomalhaut.	56. 33. 1	57. 56. 16	59. 19. 39	60. 43. 11	62. 6. 52	63. 30. 41	64. 54. 37	66.18.41
7		67. 42. 53	69. 7. 12	70. 31. 39	71. 56. 13	73. 20. 55	74. 45. 44	76. 10. 40	77.35.44
8		79. 0. 56	80. 26. 16	81. 51. 44	83. 17. 20	84. 43. 5			
8	α Arietis.					20. 49. 14	22. 10. 15	23. 32. 15	24.55.12
9		26. 18. 59	27. 43. 35	29. 8. 54	30. 34. 55	32. 1. 34	33. 28. 41	34. 56. 19	36.24.26
10		37. 53. 3	39. 22. 4	40. 51. 32	42. 21. 25	43. 51. 45	45. 22. 28	46. 53. 36	48.25. 9
11		49. 57. 6	51. 29. 28	53. 2. 14	54. 35. 24	56. 8. 58			
11	Aldebaran.					26. 19. 42	27. 49. 51	29. 20. 49	30.52.33
12		32. 25. 6	33. 58. 22	35. 32. 18	37. 6. 57	38. 42. 15	40. 18. 7	41. 54. 34	43.31.36
13		45. 9. 14	46. 47. 25	48. 26. 8	50. 5. 24	51. 45. 13	53. 25. 32	55. 6. 22	56.47.42

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
14	Aldebaran.	58. 29. 33	60. 11. 54	61. 54. 44	63. 38. 4	65. 21. 52	67. 6. 10	68. 50. 55	70.36. 7
15		72. 21. 47	74. 7. 54	75. 54. 25	77. 41. 21	79. 28. 41	81. 16. 25	83. 4. 30	84.52.57
16		86. 41. 47							
20	Spica ♍			38. 39. 47	40. 23. 34	42. 7. 6	43. 50. 22	45. 33. 21	47.16. 2
21		48. 58. 26	50. 40. 30	52. 22. 13	54. 3. 38	55. 44. 42	57. 25. 25	59. 5. 47	60.45.48
22		62. 25. 27	64. 4. 44	65. 43. 38	67. 22. 11	69. 0. 21	70. 38. 7	72. 15. 32	73.52.34
23		75. 29. 14	77. 5. 32	78. 41. 27	80. 17. 1	81. 52. 12	83. 27. 0	85. 1. 26	86.35.31
24		88. 9. 14	89. 42. 36	91. 15. 39	92. 48. 20	94. 20. 41	95. 52. 41	97. 24. 21	98.55.42
25		100. 26. 44	101. 57. 27	103. 27. 52	104. 57. 58	106. 27. 47	107. 57. 17	109. 26. 31	110.55.28
26		112. 24. 9	113. 52. 34	115. 20. 43	116. 48. 38	118. 16. 17	119. 43. 42	121. 10. 51	
24	Antares.	23. 6. 27	24. 47. 8	26. 27. 29	28. 7. 29	29. 47. 9	31. 26. 29	33. 5. 30	34.44.11
25		36. 22. 34	38. 0. 38	39. 38. 24	41. 15. 53	42. 53. 3	44. 29. 55	46. 6. 31	47.42.50
26		49. 18. 53	50. 54. 40	52. 30. 12	54. 5. 29	55. 40. 31	57. 15. 18	58. 49. 51	60.24.11
27		61. 58. 16	63. 32. 8	65. 5. 48	66. 39. 15	68. 12. 30	69. 45. 34	71. 18. 26	72.51. 8
28		74. 23. 39	75. 56. 0	77. 28. 10	79. 0. 11	80. 32. 2	82. 3. 44	83. 35. 17	85. 6.42
29		86. 37. 58	88. 9. 6	89. 40. 7	91. 11. 0	92. 41. 46	94. 12. 24	95. 42. 55	97.13.20
30		98. 43. 39	100. 13. 52	101. 44. 0	103. 14. 2	104. 43. 59	106. 13. 50	107. 43. 35	109.13.16
O.1		110. 42. 51							

Configurations of the SATELLITES of JUPITER at Half an Hour past 7 o' Clock in the Evening.



Configurations at 7 o' Clock in the Evening.



OCTOBER 1781.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	M.	Remigius.
2	Tu.	
3	W.	
4	Th.	
5	F.	
6	Sa.	Faith.
7	*Su.*	*17th Sunday after Trinity.*
8	M.	
9	Tu.	St. Denys.
10	W.	Oxford and Cam. Terms
11	Th.	[begin.
12	F.	
13	Sa.	Tranſ. of K. Edw. Conf.
14	*Su.*	*18th Sunday after Trinity.*
15	M.	
16	Tu.	
17	W.	Etheldred.
18	Th.	*St. Luke.*
19	F.	
20	Sa.	
21	*Su.*	*19th Sunday after Trinity.*
22	M.	
23	Tu.	
24	W.	
25	Th.	*K. Geo.* III. *Acceſ.* Criſp.
26	F.	*K. Geo.* III. *procl.* 1760.
27	Sa.	
28	*Su.*	*20th Sunday after Trinity.*
29	M.	*[St. Simon and St. Jude.*
30	Tu.	
31	W.	

Phaſes of the Moon.

	D.	H.	M.
Full Moon —	2.	0.	2
Laſt Quarter —	10.	2.	50
New Moon —	16.	21.	9
Firſt Quarter —	23.	15.	35
Full Moon —	31.	18.	29

Other Phenomena.

D.
2. ♀ α ♎ diff.Lat. 50′.
2. ☾ ζ ♓ 14h. 41′.
5. ☾ δ ♈ 5h. 43′.
7. ♀ 1 ad ι ♎ diff. Lat. 1°. 7′.
10. ♃ λ ♎ diff.Lat. 33′.
10. ☾ 2 ad Ψ ♋ 18h. 33′.
12. ☾ ν ♌ 21h. 0′.
15. ☾ ν ♍ 9h. 26′.
16. ♀ ♃ diff. Lat. 1°. 47′.
17. ♀ δ ♏ diff. Lat. 44′.
17. ☾ ♀ 22h. 44′.
17. ☉ eclipſed, viſible.
18. ☾ 1 ad ι ♎ 10h. 33′.
19. ☾ σ ♏ 13h. 35′.
22. ☿ 1 ad ι ♎ diff.Lat. 1′.
22. ☾ τ ♐ 4h. 36′.
22. ☉ enters ♏ at 13h. 5′.
23. ♃ β ♏ diff. Lat. 24′.
24. ☾ ε ♑ 21h. 52′.
27. ☾ 1 Ψ ♒ 1h. 0′.
27. ☾ 2 Ψ 1h. 54′.
29. ☾ ζ ♓ 20h. 55′.

OCTOBER 1781.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. South.	Equat. of Time. Sub.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	M.	6. 8. 37. 54	12.31.42,5	3. 25. 37	10. 32,0	18,6
2	Tu.	6. 9. 37. 2	12.35.20,4	3. 48. 55	10. 50,6	18,3
3	W.	6. 10. 36. 11	12.38.58,5	4. 12. 10	11. 8,9	18,1
4	Th.	6. 11. 35. 22	12.42.37,0	4. 35. 22	11. 27,0	17,7
5	F.	6. 12. 34. 36	12.46.15,8	4. 58. 30	11. 44,7	17,4
6	Sa.	6. 13. 33. 52	12.49.54,9	5. 21. 35	12. 2,1	16,9
7	*Su.*	6. 14. 33. 10	12.53.34,5	5. 44. 36	12. 19,0	16,4
8	M.	6. 15. 32. 31	12.57.14,6	6. 7. 33	12. 35,4	15,9
9	Tu.	6. 16. 31. 54	13. 0.55,2	6. 30. 25	12. 51,3	15,4
10	W.	6. 17. 31. 20	13. 4.36,3	6. 53. 13	13. 6,7	15,0
11	Th.	6. 18. 30. 48	13. 8.17,9	7. 15. 55	13. 21,7	14,4
12	F.	6. 19. 30. 18	13.12. 0,0	7. 38. 30	13. 36,1	13,9
13	Sa.	6. 20. 29. 51	13.15.42,6	8. 1. 0	13. 50,0	13,4
14	*Su.*	6. 21. 29. 26	13.19.25,7	8. 23. 23	14. 3,4	12,8
15	M.	6. 22. 29. 3	13.23. 9,4	8. 45. 39	14. 16,2	12,2
16	Tu.	6. 23. 28. 43	13.26.53,7	9. 7. 48	14. 28,4	11,7
17	W.	6. 24. 28. 24	13.30.38,6	9. 29. 49	14. 40,1	11,0
18	Th.	6. 25. 28. 8	13.34.24,1	9. 51. 41	14. 51,1	10,3
19	F.	6. 26. 27. 54	13.38.10,3	10. 13. 25	15. 1,4	9,8
20	Sa.	6. 27. 27. 41	13.41.57,1	10. 35. 0	15. 11,2	9,0
21	*Su.*	6. 28. 27. 31	13.45.44,5	10. 56. 25	15. 20,2	8,4
22	M.	6. 29. 27. 22	13.49.32,6	11. 17. 40	15. 28,6	7,8
23	Tu.	7. 0. 27. 15	13.53.21,4	11. 38. 44	15. 36,4	7,1
24	W.	7. 1. 27. 9	13.57.10,8	11. 59. 39	15. 43,5	6,4
25	Th.	7. 2. 27. 5	14. 1. 0,9	12. 20. 23	15. 49,9	5,8
26	F.	7. 3. 27. 3	14. 4.51,8	12. 40. 54	15. 55,7	4,9
27	Sa.	7. 4. 27. 3	14. 8.43,4	13. 1. 14	16. 0,6	4,3
28	*Su.*	7. 5. 27. 2	14.12.35,6	13. 21. 21	16. 4,9	3,6
29	M.	7. 6. 27. 4	14.16.28,5	13. 41. 15	16. 8,5	2,8
30	Tu.	7. 7. 27. 8	14.20.22,3	14. 0. 56	16. 11,3	1,9
31	W.	7. 8. 27. 15	14.24.17,0	14. 20. 25	16. 13,2	

Days of the Month.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 2,9	1. 4,3	2. 27,8	9,999937	0. 26. 13
7	16. 4,5	1. 4,6	2. 28,4	9,999190	0. 25. 54
13	16. 6,2	1. 5,0	2. 28,9	9,998463	0. 25. 34
19	16. 7,8	1. 5,6	2. 29,3	9,997735	0. 25. 15
25	16. 9,5	1. 6,2	2. 29,8	9,997007	0. 24. 56

Eclipſes of the SATELLITES of JUPITER.

I. Satellite.
Emerſions.

Days	H. M. S.
2	9. 39. 28
4	4. 8. 41
5	22. 37. 52
7	17. 7. 1
9	11. 36. 8
*11	6. 5. 14
13	0. 34. 18
14	19. 3. 19
16	13. 32. 18
18	8. 1. 15
20	2. 30. 10
21	20. 59. 3
23	15. 27. 52
25	9. 56. 40
27	4. 25. 25
28	22. 54. 9
30	17. 22. 50

II. Satellite.
Emerſions.

Days	H. M. S.
2	1. 21. 6
5	14. 40. 37
9	3. 59. 59
12	17. 19. 16
*16	6. 38. 29
19	19. 57. 35
23	9. 16. 34
26	22. 35. 25
30	11. 54. 10

III. Satellite.

Days	H. M. S.	
6	15. 59. 48	I
6	17. 58. 52	E
13	20. 0. 11	I
13	22. 0. 21	E
21	0. 0. 1	I
21	2. 1. 17	E
28	3. 59. 12	I
28	6. 1. 35	E

IV. Satellite. Conj.

7	10. 29	Inf.
15	19. 6	Sup.
24	6. 53	Inf.

OCTOBER 1781.

Days.	Heliocentric Longitude. S. D. M.	Heliocentric Latitude. D. M.	Geocentric Longitude. S. D. M.	Geocentric Latitude. D. M.	Declination. D. M.	Passage over Merid. H. M.
			MERCURY.			
1	7. 0. 47	1. 49 N	6. 15. 18	0. 34 N	5. 31 S	0. 26
4	7. 9. 58	0. 43 N	6. 20. 15	0. 14 N	7. 43	0. 33
7	7. 18. 44	0. 22 S	6. 25. 6	0. 7 S	9. 50	0. 39
10	7. 27. 14	1. 24	6. 29. 49	0. 28	11. 51	0. 46
13	8. 5. 33	2. 23	7. 4. 27	0. 49	13. 47	0. 52
16	8. 13. 48	3. 18	7. 8. 59	1. 9	15. 35	0. 58
19	8. 22. 3	4. 9	7. 13. 24	1. 28	17. 17	1. 4
22	9. 0. 24	4. 56	7. 17. 44	1. 46	18. 50	1. 10
25	9. 8. 56	5. 37	7. 21. 57	2. 3	20. 15	1. 15
28	9. 17. 49	6. 11	7. 26. 3	2. 18	21. 31	1. 20
31	9. 27. 5	6. 38	7. 29. 59	2. 30	22. 36	1. 25
			VENUS.			
1	8. 27. 11	0. 44 S	7. 10. 33	0. 24 S	15. 23 S	2. 1
7	9. 6. 41	1. 16	7. 17. 50	0. 42	17. 50	2. 7
13	9. 16. 10	1. 46	7. 25. 6	1. 1	20. 2	2. 15
19	9. 25. 39	2. 13	8. 2. 22	1. 18	21. 56	2. 22
25	10. 5. 7	2. 37	8. 9. 36	1. 35	23. 29	2. 30
			MARS.			
1	11. 11. 15	1. 42 S	9. 28. 20	3. 29 S	23. 55 S	7. 33
7	11. 15. 3	1. 39	10. 1. 24	3. 12	22. 59	7. 24
13	11. 18. 50	1. 35	10. 4. 38	2. 56	21. 58	7. 15
19	11. 22. 36	1. 31	10. 8. 1	2. 40	20. 52	7. 7
25	11. 26. 22	1. 27	10. 11. 34	2. 26	19. 40	6. 58
			JUPITER.			
1	8. 3. 39	0. 46 N	7. 25. 46	0. 41 N	18. 33 S	3. 3
7	8. 4. 7	0. 45	7. 26. 53	0. 40	18. 50	2. 46
13	8. 4. 35	0. 45	7. 28. 3	0. 39	19. 7	2. 28
19	8. 5. 4	0. 44	7. 29. 16	0. 38	19. 24	2. 11
25	8. 5. 32	0. 43	8. 0. 31	0. 37	19. 40	1. 53
			SATURN.			
1	8. 20. 16	1. 19 N	8. 15. 2	1. 16 N	21. 23 S	4. 24
7	8. 20. 26	1. 18	8. 15. 28	1. 15	21. 26	4. 4
13	8. 20. 38	1. 18	8. 15. 57	1. 14	21. 30	3. 44
19	8. 20. 49	1. 17	8. 16. 28	1. 13	21. 34	3. 24
25	8. 20. 59	1. 17	8. 17. 1	1. 12	21. 38	3. 3

OCTOBER 1781.

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	M.	11. 27. 43. 27	0. 3. 40. 14	2. 27. 29 S	1.57.42 S
2	Tu.	0. 9. 35. 49	0. 15. 30. 29	1. 26. 34	0.54 42 S
3	W.	0. 21. 24. 26	0. 27. 18. 1	0. 22. 15 S	0.10.25 N
4	Th.	1. 3. 11. 29	1. 9. 5. 9	0. 43. 0 N	1.15. 8
5	F.	1. 14. 59. 22	1. 20. 54. 31	1. 46. 32	2.16.53
6	Sa.	1. 26. 51. 0	2. 2. 49. 14	2. 45. 52	3.13.11
7	*Su.*	2. 8. 49. 42	2. 14. 52. 52	3. 38. 34	4. 1.41
8	M.	2. 20. 59. 14	2. 27. 9. 17	4. 22. 16	4.40. 3
9	Tu.	3. 3. 23. 33	3. 9. 42. 30	4. 54. 44	5. 6. 3
10	W.	3. 16. 6. 40	3. 22. 36. 27	5. 13. 45	5.17.35
11	Th.	3. 29. 12. 17	4. 5. 54. 28	5. 17. 20	5.12.47
12	F.	4. 12. 43. 16	4. 19. 38. 51	5. 3. 48	4.50 18
13	Sa.	4. 26. 41. 13	5. 3. 50. 11	4. 32. 14	4. 9.42
14	*Su.*	5. 11. 5. 26	5. 18. 26. 31	3. 42. 48	3.11.55
15	M.	5. 25. 52. 46	6. 3. 23. 16	2. 37. 26	1.59.54
16	Tu.	6. 10. 57. 4	6. 18. 33. 2	1. 19. 59 N	0.38.27 N
17	W.	6. 26. 9. 56	7. 3. 46. 29	0. 3. 52 S	0.46. 4 S
18	Th.	7. 11. 21. 28	7. 18. 53. 42	1. 27. 19	2. 6.47
19	F.	7. 26. 22. 7	8. 3. 45. 50	2. 43. 43	3.17.30
20	Sa.	8. 11. 4. 3	8. 18. 16. 10	3. 47. 37	4.13.40
21	*Su.*	8. 25. 21. 50	9. 2. 20. 49	4. 35. 24	4.52.42
22	M.	9. 9. 13. 3	9. 15. 58. 38	5. 5. 29	5.13.47
23	Tu.	9. 22. 37. 46	9. 29. 10. 42	5. 17. 44	5.17.27
24	W.	10. 5. 37. 50	10. 11. 59. 35	5. 13. 8	5. 5. 2
25	Th.	10. 18. 16. 25	10. 24. 28. 48	4. 53. 22	4.38.21
26	F.	11. 0. 37. 15	11. 6. 42. 17	4. 20. 17	3.59.27
27	Sa.	11. 12. 44. 22	11. 18. 44. 0	3. 36. 7	3.10.35
28	*Su.*	11. 24. 41. 38	0. 0. 37. 43	2. 43. 8	2.14. 1
29	M.	0. 6. 32. 40	0. 12. 26. 50	1. 43. 32	1.12. 2
30	Tu.	0. 18. 20. 36	0. 24. 14. 18	0. 39. 48 S	0. 7.10 S
31	W.	1. 0. 8. 12	1. 6. 2. 36	0. 25. 33 N	0.58. 2 N

Days of the Month	Days of the Week.	☽'s Age.	☽'s Paſsage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	M.	15	11. 42	358. 54	4. 9	3. 11 S	0. 20 S
2	Tu.	16	12. 22	9. 23	14. 38	2. 29 N	5. 16 N
3	W.	17	13. 2	19. 55	25. 16	8. 1	10. 41
4	Th.	18	13. 44	30. 43	36. 16	13. 16	15. 43
5	F.	19	14. 28	41. 58	47. 50	18. 3	20. 12
6	Sa.	20	15. 15	53. 52	60. 5	22. 10	23. 54
7	*Su.*	21	16. 6	66. 29	73. 5	25. 24	26. 37
8	M.	22	16. 59	79. 52	86. 47	27. 31	28. 6
9	Tu.	23	17. 55	93. 50	100. 59	28. 19	28. 12
10	W.	24	18. 50	108. 11	115. 23	27. 41	26. 48
11	Th.	25	19. 46	122. 34	129. 41	25. 31	23. 52
12	F.	26	20. 39	136. 44	143. 41	21. 52	19. 32
13	Sa.	27	21. 31	150. 32	157. 18	16. 54	14. 0
14	*Su.*	28	22. 22	164. 0	170. 38	10. 51	7. 31
15	M.	29	23. 14	177. 16	183. 54	4. 3 N	0. 29 N
16	Tu.	1	☌	190. 35	197. 21	3. 7 S	6. 41 S
17	W.	2	0. 6	204. 14	211. 16	10. 10	13. 31
18	Th.	3	1. 2	218. 27	225. 49	16. 39	19. 30
19	F.	4	2. 1	233. 22	241. 5	22. 1	24. 9
20	Sa.	5	3. 1	248. 55	256. 49	25. 53	27. 9
21	*Su.*	6	4. 2	264. 44	272. 38	27. 58	28. 19
22	M.	7	5. 4	280. 26	288. 2	28. 13	27. 42
23	Tu.	8	6. 2	295. 24	302. 32	26. 47	25. 31
24	W.	9	6. 54	309. 24	315. 59	23. 56	22. 6
25	Th.	10	7. 42	322. 20	328. 24	20. 1	17. 45
26	F.	11	8. 26	334. 16	339. 57	15. 19	12. 46
27	Sa.	12	9. 8	345. 30	350. 54	10. 7	7. 23
28	*Su.*	13	9. 48	356. 13	1. 28	4. 36 S	1. 48 S
29	M.	14	10. 27	6. 41	11. 55	1. 1 N	3. 49 N
30	Tu.	15	11. 7	17. 10	22. 29	6. 35	9. 18
31	W.	16	11. 47	27. 53	33. 24	11. 56	14. 28

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon.	Semid^{r}. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	M.	14. 49	14. 47	54. 20	54. 15	5202	5209
2	Tu.	14. 46	14. 45	54. 11	54. 7	5214	5219
3	W.	14. 45	14. 44	54. 6	54. 6	5221	5221
4	Th.	14. 45	14. 45	54. 7	54. 9	5219	5217
5	F.	14. 47	14. 48	54. 14	54. 20	5210	5202
6	Sa.	14. 51	14. 53	54. 28	54. 37	5191	5179
7	*Su.*	14. 56	15. 0	54. 49	55. 3	5163	5145
8	M.	15. 4	15. 9	55. 18	55. 36	5125	5102
9	Tu.	15. 14	15. 20	55. 55	56. 17	5077	5049
10	W.	15. 27	15. 34	56. 41	57. 6	5018	4986
11	Th.	15. 41	15. 48	57. 33	58. 0	4952	4918
12	F.	15. 56	16. 4	58. 29	58. 57	4882	4848
13	Sa.	16. 12	16. 19	59. 26	59. 52	4812	4781
14	*Su.*	16. 25	16. 32	60. 17	60. 40	4751	4723
15	M.	16. 37	16. 41	60. 59	61. 15	4700	4682
16	Tu.	16. 44	16. 46	61. 26	61. 32	4669	4661
17	W.	16. 47	16. 46	61. 34	61. 30	4659	4664
18	Th.	16. 43	16. 40	61. 21	61. 8	4675	4690
19	F.	16. 35	16. 29	60. 50	60. 30	4711	4735
20	Sa.	16. 23	16. 16	60. 6	59. 40	4764	4795
21	*Su.*	16. 8	16. 0	59. 13	58. 44	4828	4864
22	M.	15. 53	15. 45	58. 16	57. 47	4898	4934
23	Tu.	15. 37	15. 30	57. 20	56. 54	4968	5002
24	W.	15. 23	15. 17	56. 29	56. 7	5033	5062
25	Th.	15. 11	15. 7	55. 45	55. 28	5090	5112
26	F.	15. 2	14. 58	55. 10	54. 56	5136	5154
27	Sa.	14. 55	14. 52	54. 43	54. 33	5171	5185
28	*Su.*	14. 49	14. 48	54. 24	54. 17	5197	5206
29	M.	14. 46	14. 46	54. 12	54. 9	5213	5217
30	Tu.	14. 45	14. 45	54. 7	54. 7	5219	5219
31	W.	14. 45	14. 46	54. 8	54. 10	5218	5215

Distances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon. D. M. S	3 Hours. D. M. S.	6 Hours. D. M. S.	9 Hours. D. M. S.	12 Hours. D. M. S.	15 Hours. D. M. S.	18 Hours. D. M. S.	21 Hours. D. M. S.
1		68. 53. 10	67. 24. 54	65. 56. 43	64. 28. 38	63. 0. 39	61. 32. 46	60. 4. 58	58. 37. 16
2		57. 9. 40	55. 42. 10	54. 14. 46	52. 47. 28	51. 20. 17	49. 53. 12	48. 26. 14	46. 59. 23
3	Aldebaran.	45. 32. 39	44. 6. 2	42. 39. 34	41. 13. 15	39. 47. 6	38. 21. 6	36. 55. 17	35. 29. 41
4		34. 4. 20	32. 39. 13	31. 14. 22	29. 49. 53	28. 25. 45	27. 1. 59	25. 38. 42	24. 16. 10
5		22. 54. 19	21. 32. 59	20. 12. 44	18. 54. 0	17. 36. 59	16. 22. 2	15. 9. 23	13. 59. 20
6		12. 52. 13							
6		89. 55. 14	88. 25. 55	86. 56. 30	85. 26. 59	83. 57. 21	82. 27. 36	80. 57. 44	79. 27. 43
7		77. 57. 34	76. 27. 17	74. 56. 50	73. 26. 13	71. 55. 27	70. 24. 31	68. 53. 23	67. 22. 4
8	Regulus.	65. 50. 34	64. 18. 51	62. 46. 56	61. 14. 47	59. 42. 25	58. 9. 49	56. 36. 57	55. 3. 51
9		53. 30. 30	51. 56. 54	50. 23. 2	48. 48. 53	47. 14. 28	45. 39. 45	44. 4. 44	42. 29. 25
10		40. 53. 47							
7						120. 5. 2	118. 41. 14	117. 17. 15	115. 53. 5
8		114. 28. 43	113. 4. 8	111. 39. 20	110. 14. 18	108. 49. 2	107. 23. 31	105. 57. 45	104. 31. 43
9		103. 5. 25	101. 38. 51	100. 11. 59	98. 44. 50	97. 17. 22	95. 49. 36	94. 21. 30	92. 53. 4
10	The Sun.	91. 24. 18	89. 55. 12	88. 25. 45	86. 55. 57	85. 25. 47	83. 55. 14	82. 24. 18	80 52. 59
11		79. 21. 16	77. 49. 10	76. 16. 39	74. 43. 44	73. 10. 24	71. 36. 38	70. 2. 27	68. 27. 50
12		66. 52. 47	65. 17. 18	63. 41. 22	62. 5. 0	60. 28. 11	58. 50. 56	57. 13. 14	55. 35. 6
13		53. 56. 31	52. 17. 29	50. 38. 2	48. 58. 10	47. 17. 51	45. 37. 5	43. 55. 55	42. 14. 23
14		40. 32. 28							

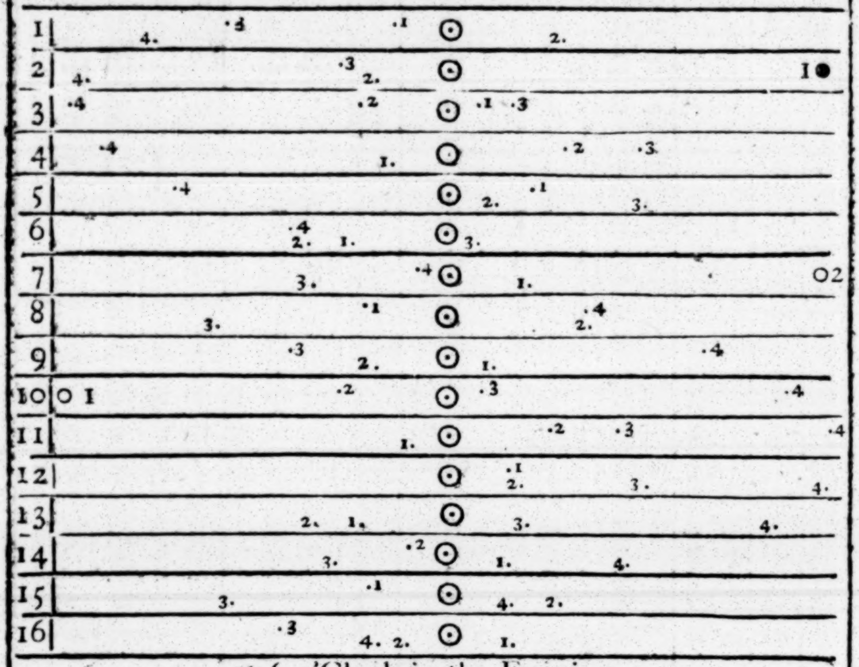
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S	D. M. S.	D. M. S.
18	α Aquilæ.	79. 42. 21	78. 9. 34	76. 37. 13	75. 5. 20	73. 34. 0	72. 3. 17	70. 33. 13	69. 3. 51
19		67. 35. 16	66. 7. 29	64. 40. 33	63. 14. 35	61. 49. 38	60. 25. 46	59. 3. 3	57. 41. 32
20		56. 21. 20							
20	α Pegaſi.	100. 6. 12	98. 26. 1	96. 46. 9	95. 6. 37	93. 27. 26	91. 48. 37	90. 10. 11	88. 32. 9
21		86. 54. 32	85. 17. 21	83. 40. 38	82. 4. 23	80. 28. 35	78. 53. 16	77. 18. 28	75. 44. 10
22		74. 10. 22	72. 37. 6	71. 4. 22	69. 32. 12	68. 0. 36	66. 29. 34	64. 59. 8	63. 29. 18
23		62. 0. 5	60. 31. 29	59. 3. 32	57. 36. 14	56. 9. 35			
23	α Arietis.					96. 15. 6	94. 39. 25	93. 4. 4	91. 29. 4
24		89. 54. 24	88. 20. 3	86. 46. 1	85. 12. 18	83. 38. 53	82. 5. 46	80. 32. 56	79. 0. 23
25		77. 28. 8	75. 56. 9	74. 24. 25	72. 52. 57	71. 21. 45	69. 50. 47	68. 20. 4	66. 49. 35
26		65. 19. 20	63. 49. 18	62. 19. 29	60. 49. 54	59. 20. 31	57. 51. 20	56. 22. 22	54. 53. 36
27		53. 25. 3	51. 56. 41	50. 28. 30	49. 0. 32	47. 32. 46	46. 5. 11	44. 37. 49	43. 10. 40
28		41. 43. 44	40. 17. 0	38. 50. 31	37. 24. 17	35. 58. 20	34. 32. 40	33. 7. 18	31. 42. 16
29		30. 17. 34							
29	Aldeba-ran.	60. 10. 34	58. 43. 6	57. 15. 43	55. 48. 24	54. 21. 10	52. 54. 1	51. 26. 57	49. 59. 58
30		48. 33. 5	47. 6. 16	45. 39. 33	44. 12. 56	42. 46. 26	41. 20. 2	39. 53. 46	38. 27. 39
31		37. 1. 41	35. 35. 53	34. 10. 18	32. 44. 56	31. 19. 50	29. 55. 4	28. 30. 38	27. 6. 35
N.1		25. 42. 56							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

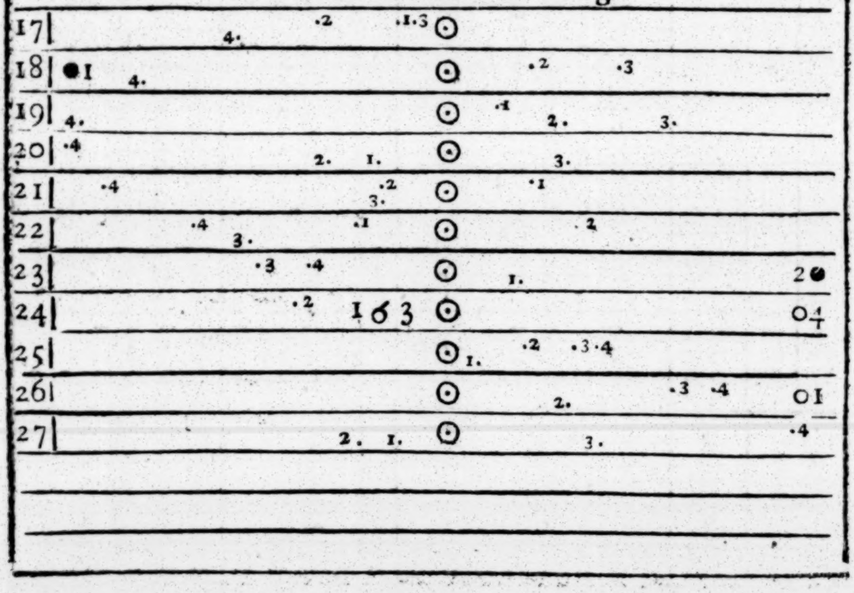
Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Fomal-haut.	32.10.49	33.26.38	34.43.17	36. 0.43	37.18.53	38.37.43	39.57. 7	41.17. 4
2		42.37.31	43.58.17	45.19.28	46.40.59	48. 2.48	49.24.53	50.47.12	52. 9.47
3		53.32.34	54.55.33	56.18.43	57.42. 4	59. 5.35	60.29.14	61.53. 1	63.16.56
4		64.40.58	66. 5. 7	67.29.23	68.53.46	70.18.15	71.42.50	73. 7.31	74.32.19
5		75.57.12	77.22.11	78.47.15	80.12.24	81.37.39			
5	α Arietis.					17.54.57	19.12.44	20.31.48	21.52. 5
6		23.13.27	24.35.49	25.59. 6	27.23. 9	28.47.55	30.13. 8	31.38.51	33. 5. 5
7		34.31.48	35.58.53	37.26.20	38.54.10	40.22.23	41.50.54	43.19.42	44.48.55
8		46.18.29	47.48.19	49.18.28	50.48.56	52.19.44	53.50.50	55.22.14	56.53.57
9		58.26. 1	59.58.24	61.31. 7	63. 4.10	64.37.33			
9	Aldeba-ran.					34.34.41	36. 6.24	37.38.38	39.11.24
10		40.44.41	42.18.28	43.52.46	45.27.34	47. 2.51	48.38.37	50.14.52	51.51.35
11		53.28.47	55. 6.27	56.44.35	58.23.11	60. 2.16	61.41.49	63.21.50	65. 2.19
12		66.43.17	68.24.43	70. 6.37	71.48.59	73.31.49	75.15. 7	76.58.53	78.43. 5
13		80.27.45	82.12.51	83.58.23	85.44.21	87.30.46	89.17.36	91. 4.49	92.52.27
14		94.40.29							

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours	21 Hours.
		D. M. S.	D. M. S.	D M. S.	D M. S.	D. M. S.	D. M. S	D. M S.	D. M. S.
14	Regulus.	14. 39. 7	16. 25. 10	18. 12. 8	19. 59. 56	21. 48. 31	23. 37. 48	25. 27. 44	27. 18. 14
15		29. 9. 15	31. 0. 42	32. 52. 31	34. 44 39	36. 37. 1			
19	The Sun.					36. 55. 37	38. 38. 23	40. 20. 44	42. 2. 42
20		43. 44. 16	45. 25. 25	47. 6. 9	48. 46. 28	50. 26. 21	52. 5. 48	53. 44. 49	55. 23. 23
21		57. 1. 3	58. 39. 12	60. 16. 27	61. 53. 15	63. 29. 37	65. 5. 32	66. 41. 1	68. 16. 4
22		69. 50. 41	71. 24. 52	72. 58. 38	74. 31. 58	76. 4. 53	77. 37. 24	79. 9. 30	80. 41. 13
23		82. 12. 32	83. 43. 27	85. 14. 0	86. 44. 10	88. 13. 57	89. 43. 23	91. 12. 29	92. 41. 14
24		94. 9. 39	95. 37. 44	97. 5. 29	98. 32. 56	100. 0. 4	101. 26. 55	102. 53. 29	104. 19. 46
25		105. 45. 47	107. 11. 32	108. 37. 2	110. 2. 17	111. 27. 18	112. 52. 5	114. 16. 39	115. 41. 0
26		117. 5. 9							
23	Antares.					52. 15. 49	53. 52. 42	55. 29. 14	57. 5. 26
24		58. 41. 17	60. 16. 49	61. 52. 1	63. 26. 55	65. 1. 30	66. 35. 47	68. 9. 48	69. 43. 32
25		71. 17. 0	72. 50. 12	74. 23. 9	75. 55. 52	77. 28. 20	79. 0. 35	80. 32. 37	82. 4. 26
26		83. 36. 3	85. 7. 28	86. 38. 42	88. 9. 46	89. 40. 39	91. 11. 22	92. 41. 56	94. 12. 21
27		95. 42. 37	97. 12. 45	98. 42. 46	100. 12. 40	101. 42. 28			
27	α Aquilæ					57. 51. 27	58. 58. 18	60. 5. 41	61. 13. 35
28		62. 21. 57	63. 30. 44	64. 39. 55	65. 49. 31	66. 59. 36	68. 9. 57	69. 20. 33	70. 31. 25
29		71. 42. 32	72. 53. 55	74. 5. 33	75. 17. 25	76. 29. 24	77. 41. 35	78. 53. 55	80. 6. 25
30		81. 19. 3	82. 31. 48	83. 44. 39	84. 57. 35	86. 10. 36	87. 23. 40	88. 36. 47	89. 49. 56
31		91. 3. 7	92. 16. 18	93. 29. 29	94. 42. 39	95. 55. 47	97. 8. 53	98. 21. 55	99. 34. 52
N. 1		100. 47. 45							

Configurations of the SATELLITES of JUPITER at ½ paſt 6 o'Clock in the Evening.



at 6 o'Clock in the Evening.



Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Th.	*All Saints.*
2	F.	*Pr. Edward born.* [ret.
3	Sa.	On mor. of All Souls, 1
4	*Su.*	*21ſt Sunday after Trinity.*
5	M.	*Powder-Plot, 1605.*
6	Tu.	Leonard. M.T. begins.
7	W.	*Duke of Cumberland born.*
8	Th.	*Prs. Aug. Sophia born.*
9	F.	
10	Sa.	
11	*Su.*	*22d Su. aft. Tr.* St. Mart.
12	M.	On mor. of S. Mart. 2 ret.
13	Tu.	Britius. Cam. T. div. m.
14	W.	
15	Th.	Machutus.
16	F.	
17	Sa.	Hugh Bp. of Lincoln.
18	*Su.*	*23d Su. aft. Tr.* In 8 days
19	M.	[of St. Mart. 3 ret.
20	Tu.	Edmund K. and Mart.
21	W.	
22	Th.	Cecilia.
23	F.	St. Clement.
24	Sa.	
25	*Su.*	*24th S. aft. Tr. D. of Gl. b.*
26	M.	[In 15d. of St. Mart. 4 ret.
27	Tu.	
28	W.	Michaelmas Term ends.
29	Th.	
30	F.	*St. Andrew.*

Phaſes of the Moon.	D.	H.	M.
Laſt Quarter —	8.	15.	21
New Moon —	15.	7.	12
Firſt Quarter —	22.	7.	32
Full Moon —	30.	12.	55

Other Phenomena.	
D.	
1.	☾ δ ♈ 11ʰ. 48′.
	♀ θ Ophiu. diff. Lat. 6′.
4.	☾ β ♉ 3ʰ. 3′.
	♂ γ ♑ diff. Lat. 29′.
6.	☾ ι ♊ 5ʰ. 53′.
7.	☾ 2 ψ ♋ 1ʰ. 13′.
9.	☾ η ♌ 5ʰ. 2′.
11.	☾ η ♍ 19ʰ. 37′.
12.	☾ γ ♍ 4ʰ. 29′.
	☾ θ ♍ 17ʰ. 33′.
13.	☾ λ ♍ 23ʰ. 31′.
14.	♀ λ ♐ diff. Lat. 10′.
16.	☾ 43 Ophiu. 23ʰ. 11′.
	♂ ι ♒ diff. Lat. 27′.
18.	☾ φ ♐ 5ʰ. 53′.
	☾ τ ♐ 13ʰ. 49′.
19.	☿ Stationary.
21.	☾ ε ♑ 5ʰ. 15′.
22.	☉ enters ♐ at 9ʰ. 12′.
23.	☾ 1 ψ ♒ Im. 8ʰ. 5′¾. * 9′ N. of ☽'s cent. Em. 9ʰ. 16′. * 2′ N.
	☾ 2 ψ 8ʰ. 29′.
	☾ 3 ψ 8ʰ. 37′.
26.	☾ ζ ♓ 3ʰ. 22′.
28.	☾ δ ♈ 18ʰ. 13′.

NOVEMBER 1781. II.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. North.	Equat. of Time Sub.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Th.	7. 9. 27. 23	14. 28. 12,4	14. 39. 39	16.14,3	0,4
2	F.	7. 10. 27. 33	14. 32. 8,6	14. 58. 39	16.14,7	0,4
3	Sa.	7. 11. 27. 44	14. 36. 5,5	15. 17. 24	16.14,3	1,3
4	*Su.*	7. 12. 27. 57	14. 40. 3,4	15. 35. 54	16.13,0	2,1
5	M.	7. 13. 28. 13	14. 44. 2,0	15. 54. 9	16.10,9	3,0
6	Tu.	7. 14. 28. 31	14. 48. 1,6	16. 12. 8	16. 7,9	3,9
7	W.	7. 15. 28. 51	14. 52. 2,0	16. 29. 51	16. 4,0	4,7
8	Th.	7. 16. 29. 12	14. 56. 3,3	16. 47. 17	15.59,3	5,6
9	F.	7. 17. 29. 36	15. 0. 5,5	17. 4. 26	15.53,7	6,4
10	Sa.	7. 18. 30. 2	15. 4. 8,5	17. 21. 17	15.47,3	7,3
11	*Su.*	7. 19. 30. 30	15. 8. 12,3	17. 37. 51	15.40,0	8,2
12	M.	7. 20. 31. 0	15. 12. 17,1	17. 54. 7	15.31,8	9,0
13	Tu.	7. 21. 31. 32	15. 16. 22,7	18. 10. 4	15.22,8	9,9
14	W.	7. 22. 32. 5	15. 20. 29,2	18. 25. 42	15.12,9	10,8
15	Th.	7. 23. 32. 40	15. 24. 36,5	18. 41. 0	15. 2,1	11,6
16	F.	7. 24. 33. 17	15. 28. 44,7	18. 55. 58	14.50,5	12,5
17	Sa.	7. 25. 33. 56	15. 32. 53,8	19. 10. 36	14.38,0	13,3
18	*Su.*	7. 26. 34. 36	15. 37. 3,7	19. 24. 53	14.24,7	14,0
19	M.	7. 27. 35. 17	15. 41. 14,4	19. 38. 49	14.10,7	14,9
20	Tu.	7. 28. 35. 59	15. 45. 25,9	19. 52. 24	13.55,8	15,7
21	W.	7. 29. 36. 43	15. 49. 38,1	20. 5. 37	13.40,1	16,4
22	Th.	8. 0. 37. 27	15. 53. 51,1	20. 18. 28	13.23,7	17,2
23	F.	8. 1. 38. 12	15. 58. 4,9	20. 30. 56	13. 6,5	17,9
24	Sa.	8. 2. 38. 59	16. 2. 19,5	20. 43. 1	12.48,6	18,7
25	*Su.*	8. 3. 39. 47	16. 6. 34,8	20. 54. 42	12.29,9	19,4
26	M.	8. 4. 40. 35	16. 10. 50,8	21. 6. 0	12.10,5	20,1
27	Tu.	8. 5. 41. 24	16. 15. 7,5	21. 16. 54	11.50,4	20,8
28	W.	8. 6. 42. 14	16. 19. 24,9	21. 27. 24	11.29,6	21,4
29	Th.	8. 7. 43. 6	16. 23. 43,0	21. 37. 30	11. 8,2	22,2
30	F.	8. 8. 43. 58	16. 28. 1,7	21. 47. 11	10.46,0	

Days.	Semidiameter of the Sun.	Time of D passing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 11,2	1. 6,9	2. 30,4	9,996201	0. 24. 34
7	16. 12,7	1. 7,7	2. 30,8	9,995577	0. 24. 15
13	16. 14,0	1. 8,3	2. 31,3	9,995006	0. 23. 56
19	16. 15,1	1. 9,0	2. 31,7	9,994467	0. 23. 37
25	16. 16,2	1. 9,7	2. 32,1	9,993971	0. 23. 18

The Eclipſes of JUPITER's Satellites will not be viſible this Month, JUPITER being too near the Sun.

NOVEMBER 1781. IV.

Days	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Passage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
Inf. ☌ 27^{d}. 21^{h}. MERCURY. Gr. Elong. 7^{d}.						
1	10. 0. 17	6. 45 S	8. 1. 15	2. 33 S	22. 56 S	1. 26
4	10. 10. 18	6. 58	8. 4. 54	2. 40	23. 46	1. 30
7	10. 21. 2	6. 58	8. 8. 14	2. 43	24. 23	1. 32
10	11. 2. 39	6. 42	8. 11. 6	2. 40	24. 46	1. 32
13	11. 15. 18	6. 6	8. 13. 20	2. 29	24. 53	1. 31
16	11. 29. 11	5. 6	8. 14. 40	2. 8	24. 42	1. 23
19	0. 14. 23	3. 40	8. 14. 46	1. 35	24. 10	1. 12
22	1. 0. 55	1. 48 S	8. 13. 20	0. 48 S	23. 13	0. 53
25	1. 18. 42	0. 21 N	8. 10. 24	0. 10 N	21. 53	0. 28
28	2. 7. 20	2. 35	8. 6. 25	1. 10	20. 16	23. 50
30	2. 19. 58	3. 57	8. 3. 44	1. 46	19. 11	23. 31
VENUS.						
1	10. 16. 11	2. 59 S	8. 18. 1	1. 51 S	24. 46 S	2. 39
7	10. 25. 41	3. 12	8. 25. 13	2. 5	25. 28	2. 47
13	11. 5. 11	3. 21	9. 2. 22	2. 15	25. 42	2. 54
19	11. 14. 42	3. 23	9. 9. 29	2. 22	25. 30	3. 1
25	11. 24. 14	3. 21	9. 16. 34	2. 26	24. 51	3. 7
MARS. □ 18^{d}. $6^{h}\frac{3}{4}$.						
1	0. 0. 44	1. 21 S	10. 15. 49	2. 9 S	18. 10 S	6. 47
7	0. 4. 27	1. 16	10. 19. 35	1. 56	16. 49	6. 38
13	0. 8. 9	1. 11	10. 23. 25	1. 44	15. 22	6. 29
19	0. 11. 49	1. 5	10. 27. 19	1. 31	13. 52	6. 19
25	0. 15. 28	1. 0	11. 1. 17	1. 20	12. 16	6. 8
JUPITER. ☌ 29^{d}. 15^{h}.						
1	8. 6. 6	0. 43 N	8. 2. 1	0. 37 N	20. 0 S	1. 32
7	8. 6. 35	0. 42	8. 3. 19	0. 36	20. 16	1. 14
13	8. 7. 3	0. 42	8. 4. 38	0. 35	20. 31	0. 55
19	8. 7. 31	0. 41	8. 5. 58	0. 35	20. 46	0. 36
25	8. 7. 59	0. 41	8. 7. 19	0. 34	21. 0	0. 16
SATURN.						
1	8. 21. 12	1. 17 N	8. 17. 42	1. 11 N	21. 43 S	2. 38
7	8. 21. 23	1. 16	8. 18. 19	1. 10	21. 47	2. 17
13	8. 21. 34	1. 16	8. 18. 58	1. 10	21. 51	1. 56
19	8. 21. 44	1. 15	8. 19. 38	1. 9	21. 55	1. 34
25	8 21. 55	1. 15	8. 20. 19	1. 8	21. 59	1. 11

NOVEMBER 1781.

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D.M.S.
1	Th.	1. 11. 57. 57	1. 17. 53. 59	1. 29. 56 N	2. 0.56 N
2	F.	1. 23. 51. 24	1. 29. 50. 22	2. 30. 41	2.58.54
3	Sa.	2. 5. 51. 4	2. 11. 53. 45	3. 25. 16	3.49.26
4	*Su.*	2. 17. 58. 43	2. 24. 6. 12	4. 11. 11	4.30.10
5	M.	3. 0. 16. 30	3. 6. 30. 0	4. 46. 11	4.58.57
6	Tu.	3. 12. 46. 55	3. 19. 7. 40	5. 8. 16	5.13.55
7	W.	3. 25. 32. 30	4. 2. 1. 47	5. 15. 45	5.13.35
8	Th.	4. 8. 35. 49	4. 15. 14. 54	5. 7. 19	4.56.52
9	F.	4. 21. 59. 18	4. 28. 49. 10	4. 42. 12	4.23.23
10	Sa.	5. 5. 44. 39	5. 12. 45. 53	4. 0. 29	3.33.41
11	*Su.*	5. 19. 52. 43	5. 27. 5. 3	3. 3. 15	2.29.32
12	M.	6. 4. 22. 32	6. 11. 44. 44	1. 53. 0	1.14.13 N
13	Tu.	6. 19. 11. 0	6. 26. 40. 38	0. 33. 49 N	0. 7.24 S
14	W.	7. 4. 12. 37	7. 11. 45. 55	0. 48. 41 S	1.29.12
15	Th.	7. 19. 19. 26	7. 26. 51. 51	2. 8. 7	2.44.41
16	F.	8. 4. 22. 3	8. 11. 48. 54	3. 18. 10	3.47.59
17	S.	8. 19. 11. 18	8. 26. 28. 25	4. 13. 39	4.34.52
18	*Su.*	9. 3. 39. 26	9. 10. 43. 52	4. 51. 26	5. 3.14
19	M.	9. 17. 41. 23	9. 24. 31. 46	5. 10. 21	5.12.52
20	Tu.	10. 1. 15. 7	10. 7. 51. 30	5. 11. 1	5. 5. 2
21	W.	10. 14. 21. 15	10. 20. 44. 52	4. 55. 12	4.41.50
22	Th.	10. 27. 2. 44	11. 3. 15. 23	4. 25. 12	4. 5.42
23	F.	11. 9. 23. 30	11. 15. 27. 34	3. 43. 34	3.19.10
24	Sa.	11. 21. 28. 20	11. 27. 26. 24	2. 52. 46	2.24.41
25	*Su.*	0. 3. 22. 24	0. 9. 16. 53	1. 55. 12	1.24.38
26	M.	0. 15. 10. 31	0. 21. 3. 47	0. 53. 14 S	0.21.22 S
27	Tu.	0. 26. 57. 15	1. 2. 51. 18	0. 10. 44 N	0.42.44 N
28	W.	1. 8. 46. 24	1. 14. 42. 56	1. 14. 20	1.45.11
29	Th.	1. 20. 41. 12	1. 26. 41. 27	2. 15. 1	2.43.27
30	F.	2. 2. 43. 56	2. 8. 48. 47	3. 10. 8	3.34.54

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſsage over Merid.	☽'s Right Aſcenſ. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	Th.	17	12. 30	39. 2	44. 50	16. 52 N	19. 7 N
2	F.	18	13. 16	50. 48	56. 58	21. 11	23. 3
3	Sa.	19	14. 6	63. 18	69. 49	24. 41	26. 2
4	*Su.*	20	14. 58	76. 30	83. 21	27. 6	27. 50
5	M.	21	15. 52	90. 19	97. 24	28. 14	28. 17
6	Tu.	22	16. 46	104. 27	111. 33	27. 58	27. 17
7	W.	23	17. 40	118. 36	125. 36	26. 14	24. 49
8	Th.	24	18. 32	132. 29	139. 16	23. 4	21. 0
9	F.	25	19. 23	145. 58	152. 33	18. 38	16. 0
10	Sa.	26	20. 12	159. 3	165. 30	13. 8	10. 4
11	*Su.*	27	21. 1	171. 54	178. 19	6. 49	3. 27 N
12	M.	28	21. 51	184. 46	191. 17	0. 1 N	3. 31 S
13	Tu.	29	22. 43	197. 55	204. 42	7. 0	10. 25
14	W.	30	23. 40	211. 40	218. 51	13. 42	16. 48
15	Th.	1	☌	226. 15	233. 52	19. 38	22. 9
16	F.	2	0. 40	241. 43	249. 44	24. 17	26. 0
17	Sa.	3	1. 44	257. 51	266. 1	27. 14	28. 0
18	*Su.*	4	2. 47	274. 8	282. 8	28. 16	28. 4
19	M.	5	3. 47	289. 56	297. 28	27. 25	26. 22
20	Tu.	6	4. 44	304. 44	311. 42	24. 57	23. 14
21	W.	7	5. 34	318. 22	324. 44	21. 15	19. 3
22	Th.	8	6. 20	330. 50	336. 43	16. 40	14. 9
23	F.	9	7. 3	342. 24	347. 54	11. 30	8. 49
24	Sa.	10	7. 43	353. 19	358. 37	6. 2	3. 14 S
25	*Su.*	11	8. 22	3. 51	9. 3	0. 25 S	2. 23 N
26	M.	12	9. 1	14. 19	19. 35	5. 9 N	7. 54
27	Tu.	13	9. 41	24. 56	30. 24	10. 34	13. 9
28	W.	14	10. 23	35. 58	41. 42	15. 37	17. 57
29	Th.	15	11. 8	47. 35	53. 42	20. 7	22. 5
30	F.	16	11. 56	59. 59	66. 29	23. 50	25. 20

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon.	Semid^{r}. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	Th.	14. 36	14. 48	54. 13	54. 18	5211	5205
2	F.	14. 49	14. 51	54. 23	54. 31	5198	5187
3	Sa.	14. 53	14. 56	54. 39	54. 49	5177	5163
4	*Su.*	14. 59	15. 2	55. 0	55. 12	5149	5133
5	M.	15. 7	15. 11	55. 27	55. 41	5114	5095
6	Tu.	15. 16	15. 20	56. 0	56. 17	5071	5049
7	W.	15. 26	15. 32	56. 38	56. 59	5022	4995
8	Th.	15. 38	15. 44	57. 21	57. 45	4967	4937
9	F.	15. 51	15. 58	58. 9	58. 35	4907	4875
10	Sa.	16. 4	16. 11	58. 59	59. 24	4845	4815
11	*Su.*	16. 18	16. 24	59. 48	60. 10	4786	4759
12	M.	16. 29	16. 34	60. 30	60. 47	4735	4715
13	Tu.	16. 38	16. 41	61. 1	61. 12	4698	4685
14	W.	16. 42	16. 42	61. 17	61. 19	4679	4677
15	Th.	16. 41	16. 39	61. 15	61. 7	4682	4691
16	F.	16. 36	16. 31	60. 54	60. 38	4707	4725
17	Sa.	16. 26	16. 19	60. 17	59. 54	4751	4778
18	*Su.*	16. 12	16. 5	59. 27	59. 0	4811	4844
19	M.	15. 58	15. 49	58. 31	58. 3	4880	4915
20	Tu.	15. 41	15. 34	57. 34	57. 6	4951	4986
21	W.	15. 26	15. 20	56. 40	56. 15	5019	5051
22	Th	15. 13	15. 8	55. 52	55. 32	5081	5107
23	F.	15. 3	14. 58	55. 13	54. 57	5132	5153
24	Sa.	14. 55	14. 52	54. 44	54. 33	5170	5185
25	*Su.*	14. 49	14. 48	54. 24	54. 18	5197	5205
26	M.	14. 47	14. 46	54. 14	54. 12	5210	5213
27	Tu.	14. 46	14. 47	54. 12	54. 14	5213	5210
28	W.	14. 48	14. 49	54. 17	54. 22	5206	5199
29	Th.	14. 50	14. 53	54. 28	54. 36	5191	5181
30	F.	14. 55	14. 58	54. 44	54. 54	5170	5157

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S	D. M. S.	D. M. S.	D.M.S.
1	Pollux.	63. 13. 15	66. 44. 5	65. 14. 51	63. 45. 33	62. 16. 10	60. 46. 43	59. 17. 12	57.47.36
2		56. 17. 56	54. 48. 11	53. 18. 21	51. 48. 27	50. 18. 27	48. 48. 22	47. 18. 11	45.47.55
3		44. 17. 33	42. 47. 6	41. 16. 32	39. 45. 51	38. 15. 4	36. 44. 9	35. 13. 7	33.41.58
4		32. 10. 41							
4	Regulus.	68. 50. 29	67. 19. 14	65. 47. 51	64. 16. 20	62. 44. 41	61. 12. 52	59. 40. 54	58. 8.46
5		56. 36. 28	55. 4. 0	53. 31. 22	51. 58. 33	50. 25. 33	48. 52. 22	47. 19. 0	45.45.26
6		44. 11. 41	42. 37. 44	41. 3. 35	39. 29. 14	37. 54. 40	36. 19. 54	34. 44. 56	33. 9.46
7		31. 34. 23							
7	Spica ♍	85. 27. 41	83. 51. 17	82. 14. 36	80. 37. 39	79. 0. 23	77. 22. 48	75. 44. 57	74. 6.46
8		72. 28. 18	70. 49. 28	69. 10. 20	67. 30. 51	65. 51. 3			
6	The Sun.	121. 33. 4	120. 6. 10	118. 39. 3	117. 11. 41	115. 44. 5	114. 16. 14	112. 48. 7	111.19.44
7		109. 51. 6	108. 22. 9	106. 52. 57	105. 23. 27	103. 53. 41	102. 23. 36	100. 53. 12	99.22.29
8		97. 51. 28	96. 20. 7	94. 48. 26	93. 16. 26	91. 44. 6	90. 11. 25	88. 38. 22	87. 4.58
9		85. 31. 13	83. 57. 6	82. 22. 38	80. 47. 48	79. 12. 35	77. 37. 0	76. 1. 2	74.24.42
10		72. 48. 0	71. 10. 53	69. 33. 24	67. 55. 33	66. 17. 19	64. 38. 43	62. 59. 44	61.20.23
11		59. 40. 40	58. 0. 34	56. 20. 7	54. 39. 19	52. 58. 10	51. 16. 40	49. 34. 51	47.52.43
12		46. 10. 16	44. 27. 30	42. 14. 27	41. 1. 7	39. 17. 31			

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
16	Fomal-haut.					78. 20. 58	76. 34. 58	74. 49. 23	73. 4. 9
17		71. 19. 19	69. 34. 57	67. 51. 4	66. 7. 42	64. 24. 52	62. 42. 36	61. 0. 54	59. 19. 49
18		57. 39. 21	55. 59. 31	54. 20. 22	52. 41. 56	51. 4. 14	49. 27. 17	47. 51. 8	46. 15. 52
19		44. 41. 30	43. 8. 3	41. 35. 36	40. 4. 14	38. 34. 1	37. 4. 59	35. 37. 15	34. 10. 50
20		32. 45. 53							
20	α Arietis.	94. 11. 50	92. 33. 46	90. 56. 5	89. 18. 49	87. 41. 57	86. 5. 29	84. 29. 25	82. 53. 44
21		81. 18. 26	79. 43. 30	78. 8. 56	76. 34. 44	75. 0. 54	73. 27. 26	71. 54. 18	70. 21. 31
22		68. 49. 4	67. 16. 58	65. 45. 11	64. 13. 42	62. 42. 32	61. 11. 40	59. 41. 5	58. 10. 47
23		56. 40. 46							
23	Aldeba-ran.	87. 0. 57	85. 30. 42	84. 0. 40	82. 30. 50	81. 1. 13	79. 31. 48	78. 2. 34	76. 33. 31
24		75. 4. 38	73. 35. 55	72. 7. 20	70. 38. 56	69. 10. 40	67. 42. 32	66. 14. 31	64. 46. 38
25		63. 18. 53	61. 51. 15	60. 23. 43	58. 56. 17	57. 28. 58	56. 1. 44	54. 34. 35	53. 7. 31
26		51. 40. 33	50. 13. 39	48. 46. 50	47. 20. 6	45. 53. 28	44. 26. 56	43. 0. 30	41. 34. 10
27		40. 7. 55	38. 41. 50	37. 15. 51	35. 50. 3	34. 24. 22	32. 58. 56	31. 33. 43	30. 8. 44
28		28. 44. 1							
28	Pollux.	71. 25. 28	69. 56. 12	68. 26. 50	66. 57. 23	65. 27. 51	63. 58. 13	62. 28. 29	60. 58. 40
29		59. 28. 44	57. 58. 41	56. 28. 32	54. 58. 16	53. 27. 53	51. 57. 23	50. 26. 45	48. 56. 0
30		47. 25. 7	45. 54. 7	44. 22. 59	42. 51. 43	41. 20. 20	39. 48. 48	38. 17. 8	36. 45. 21
D.1		35. 13. 25							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Fomal-haut.	73. 3.21	74. 28. 26	75. 53. 38	77. 18. 57	78. 44. 22	80. 9. 54	81. 35. 33	83. 1.17
2		84. 27. 8	85. 53. 4	87. 19. 6	88. 45. 13	90. 11. 26	91. 37. 43	93. 4. 6	94.30.34
3		95. 57. 6	97. 23. 43	98. 50. 24	100. 17. 10	101. 44. 1	103. 10. 56	104. 37. 55	106. 4.58
4		107. 32. 5							
4	α Arietis.	43. 22. 56	44. 52. 5	46. 21. 28	47. 51. 6	49. 21. 0	50. 51. 8	52. 21. 31	53.52. 9
5		55. 23. 1	56. 54. 8	58. 25. 29	59. 57. 5	61. 28. 56	63. 1. 1	64. 33. 20	66. 5.55
6		67. 38. 44	69. 11. 48	70. 45. 9	72. 18. 45	73. 52. 37	75. 26. 44	77. 1. 8	78.35.49
7		80. 10. 47	81. 46. 2	83. 21. 34	84. 57. 24	86. 33. 32			
7	Pollux.					11. 50. 30	13. 27. 34	15. 5. 1	16.42.51
8		18. 21. 5	19. 59. 43	21. 38. 42	23. 18. 4	24. 57. 49	26. 37. 56	28. 18. 25	29.59.16
9		31. 40. 30	33. 22. 5	35. 4. 3	36. 46. 23	38. 29. 7	40. 12. 13	41. 55. 42	43.39.34
10		45. 23. 49	47. 8. 28	48. 53. 31	50. 38. 56	52. 24. 44	54. 10. 55	55. 57. 29	57.44.26
11		59. 31. 45	61. 19. 27	63. 7. 31	64. 55. 57	66. 44. 44	68. 33. 52	70. 23. 20	72.13. 8
12		74. 3. 15	75. 53. 41	77. 44. 26	79. 35. 29	81. 26. 50			
12	Regulus.					44. 56. 58	46. 48. 5	48. 39. 28	50.31. 8
13		52. 23. 3	54. 15. 12	56. 7. 35	58. 0. 10	59. 52. 55	61. 45. 50	63. 38. 54	65.32. 5
14		67. 25. 23							
18	The Sun.	37. 21. 7	38. 59. 43	40. 37. 53	42. 15. 38	43. 52. 56	45. 29. 48	47. 6. 14	48.42.14
19		50. 17. 47	51. 52. 53	53. 27. 33	55. 1. 47	56. 35. 35	58. 8. 56	59. 41. 51	61.14.20

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
20	The Sun.	62. 46. 24	64. 18. 2	65. 49. 14	67. 20. 2	68. 50. 25	70. 20. 23	71. 49. 58	73.19.10
21		74. 47. 59	76. 16. 27	77. 44. 33	79. 12. 18	80. 39. 42	82. 6. 45	83. 33. 28	84.59.51
22		86. 25. 55	87. 51. 40	89. 17. 8	90. 42. 20	92. 7. 14	93. 31. 53	94. 56. 16	96.20.24
23		97. 44. 18	99. 7. 57	100. 31. 22	101. 54. 35	103. 17. 35	104. 40. 25	106. 3. 4	107.25.33
24		108. 47. 52	110. 10. 1	111. 32. 1	112. 53. 53	114. 15. 37	115. 37. 14	116. 58. 45	118.20.11
25		119. 41. 31							
21	Antares.					73. 45. 21	75. 20. 3	76. 54. 26	78.28.32
22		80. 2. 19	81. 35. 46	83. 8. 54	84. 41. 47	86. 14. 23	87. 46. 43	89. 18. 48	90.50.38
23		92. 22. 14	93. 53. 36	95. 24. 45	96. 55. 41	98. 26. 24	99. 56. 56	101. 27. 18	102.57.30
24		104. 27. 32							
24	α Aquilæ.	59. 51. 24	60. 59. 36	62. 8. 15	63. 17. 18	64. 26. 43	65. 36. 30	66. 46. 36	67.57. 0
25		69. 7. 43	70. 18. 40	71. 29. 50	72. 41. 14	73. 52. 52	75. 4. 41	76. 16. 41	77.28.51
26		78. 41. 11	79. 53. 38	81. 6. 14	82. 18. 58	83. 31. 47	84. 44. 41	85. 57. 40	87.10.44
27		88. 23. 51							
27	Fomal-haut.	58. 47. 4	60. 10. 42	61. 34. 30	62. 58. 28	64. 22. 36	65. 46. 54	67. 11. 23	68.36. 1
28		70. 0. 49	71. 25. 48	72. 50. 56	74. 16. 14	75. 41. 40	77. 7. 15	78. 32. 58	79.58.49
29		81. 24. 47							
29	α Arietis.	17. 43. 50	19. 2. 10	20. 21. 54	21. 42. 56	23. 5. 9	24. 28. 29	25. 52. 40	27.17.40
30		28. 43. 30	30. 9. 45	31. 36. 32	33. 3. 48	34. 31. 36	35. 59. 46	37. 28. 19	38.57.11
D. 1		40. 26. 19							

The Satellites of JUPITER are not viſible this Month, JUPITER being too near the SUN.

I. DECEMBER 1781.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Sa.	
2	*Su.*	*Advent Sunday.*
3	M.	
4	Tu.	
5	W.	
6	Th.	Nicholas.
7	F.	
8	Sa.	Conception of V.Mary.
9	*Su.*	*2d Sunday in Advent.*
10	M.	
11	Tu.	
12	W.	
13	Th.	Lucy.
14	F.	
15	Sa.	
16	*Su.*	*3d Su. in Adv.* O Sap.
17	M.	Oxf. and Camb. Terms [end.
18	Tu.	
19	W.	
20	Th.	
21	F.	*St. Thomas.*
22	Sa.	
23	*Su.*	*4th Sunday in Advent.*
24	M.	
25	Tu.	*Chriſtmas-Day.*
26	W.	*St. Stephen.*
27	Th.	*St. John.*
28	F.	*Innocents.*
29	Sa.	
30	*Su.*	*Sunday after Chriſtmas.*
31	M.	Silveſter.

Phaſes of the Moon.

	D.	H.	M.
Laſt Quarter —	8.	1.	49
New Moon —	14.	18.	15
Firſt Quarter —	22.	3.	4
Full Moon —	30.	5.	54

Other Phenomena.

D.	
1.	☾ β ♉ 8h. 56′.
3.	☾ ι ♊ 11h. 21′.
4.	☾ 2 ad ψ ♋ 6h. 36′.
5.	♂ λ ♒ diff. Lat. 38′.
6.	☿ Stationary.
	☾ η ♌ 10h. 53′.
9.	☾ η ♍ 3h. 22′.
10.	☾ θ ♍ 2h. 0′.
11.	☾ λ ♍ 9h. 1′.
12.	☾ 1 ad ι ♎ 7h. 59′.
13.	☾ δ ♏ 2h. 46′.
	☿ ν ♏ diff. Lat. 47′.
14.	♂ φ ♒ diff. Lat. 15′.
16.	☾ τ ♐ 0h. 17′.
18.	☾ ε ♑ 14h. 14′.
20.	☾ 1 ad ψ ♒ 15h. 27′.
	☾ 2 ad ψ ♒ 16h. 19′.
	☾ 3 ad ψ ♒ 16h. 27′.
	☉ enters ♑ at 21h. 30′.
23.	♀ γ ♑ diff. Lat. 45′.
	☾ ζ ♓ 10h. 32′.
24.	☌ ☿ ♃ diff. Lat. 32′.
26.	☾ δ ♓ 1h. 26′.
28.	☾ β ♉ 15h. 59′.
29.	♀ ι ♒ diff. Lat. 41′.
30.	☾ ι ♊ 17h. 43′.
31.	☾ 2 ad ψ ♋ 12h. 40′.

DECEMBER 1781.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. South.	Equat. of Time. Sub.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Sa.	8. 9. 44. 51	16.32.21,0	21. 56. 26	10. 23,4	23,4
2	*Su.*	8. 10. 45. 46	16.36.41,1	22. 5. 17	10. 0,0	24,0
3	M.	8. 11. 46. 42	16.41. 1,7	22. 13. 42	9. 36,0	24,6
4	Tu.	8. 12. 47. 38	16.45.22,9	22. 21. 40	9. 11,4	25,2
5	W.	8. 13. 48. 36	16.49.44,7	22. 29. 13	8. 46,2	25,8
6	Th.	8. 14. 49. 36	16.54. 7,1	22. 36. 20	8. 20,4	26,2
7	F.	8. 15. 50. 37	16.58.30,0	22. 43. 0	7. 54,2	26,8
8	Sa.	8. 16. 51. 39	17. 2.53,3	22. 49. 13	7. 27,4	27,2
9	*Su.*	8. 17. 52. 42	17. 7.17,2	22. 54. 59	7. 0,2	27,6
10	M.	8. 18. 53. 46	17.11.41,5	23. 0. 18	6. 32,6	28,0
11	Tu.	8. 19. 54. 51	17.16. 6,1	23. 5. 10	6. 4,6	28,5
12	W.	8. 20. 55. 58	17.20.31,3	23. 9. 34	5. 36,1	28,8
13	Th.	8. 21. 57. 5	17.24.56,7	23. 13. 31	5. 7,3	29,0
14	F.	8. 22. 58. 13	17.29.22,3	23. 16. 59	4. 38,3	29,3
15	Sa.	8. 23. 59. 21	17.33.48,3	23. 20. 0	4. 9,0	29,6
16	*Su.*	8. 25. 0. 31	17.38.14,5	23. 22. 32	3. 39,4	29,9
17	M.	8. 26. 1. 41	17.42.41,0	23. 24. 37	3. 9,5	30,0
18	Tu.	8. 27. 2. 51	17.47. 7,6	23. 26. 13	2. 39,5	30,1
19	W.	8. 28. 4. 1	17.51.34,3	23. 27. 21	2. 9,4	30,1
20	Th.	8. 29. 5. 12	17.56. 1,1	23. 28. 1	1. 39,3	30,1
21	F.	9. 0. 6. 22	18. 0.27,8	23. 28. 12	1. 9,2	30,1
22	Sa.	9. 1. 7. 33	18. 4.54,6	23. 27. 55	0. 39,1	30,1
23	*Su.*	9. 2. 8. 43	18. 9.21,3	23. 27. 9	0. 9,0	30,0
24	M.	9. 3. 9. 54	18.13.48,0	23. 25. 55	Ad:21,0	29,9
25	Tu.	9. 4. 11. 4	18.18.14,5	23. 24. 13	0. 50,9	29,7
26	W.	9. 5. 12. 14	18.22.40,8	23. 22. 3	1. 20,6	29,6
27	Th.	9. 6. 13. 24	18.27. 7,0	23. 19. 25	1. 50,2	29,5
28	F.	9. 7. 14. 34	18.31.33,2	23. 16. 18	2. 19,7	29,2
29	Sa.	9. 8. 15. 44	18.35.59,0	23. 12. 43	2. 48,9	28,9
30	*Su.*	9. 9. 16. 54	18.40.24,6	23. 8. 41	3. 17,8	28,7
31	M.	9. 10. 18. 5	18.44.50,0	23. 4. 11	3. 46,5	

Days of the Month.	Semidiameter of the Sun.	Time of D° paſſing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 17,1	1. 10,2	2. 32,2	9.993551	0. 22. 59
7	16. 17,9	1. 10,6	2. 32,5	9.993227	0. 22. 40
13	16. 18,5	1. 11,0	2. 32,7	9.992978	0. 22. 21
19	16. 19,0	1. 11,1	2. 32,8	9.992789	0. 22. 2
25	16. 19,2	1. 11,1	2. 32,9	9.992660	0. 21. 43

The Eclipſes of JUPITER's Satellites will not be viſible this Month, JUPITER being too near the SUN.

DECEMBER 1781.

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Paſſage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
MERCURY. Gr. Elong. 17^{d}.						
1	2. 26. 16	4. 34 N	8. 2. 31	2. 1 N	18. 42 S	23. 23
4	3. 14. 52	6. 1	7. 29. 46	2. 34	17. 37	23. 2
7	4. 2. 31	6. 50	7. 28. 40	2. 47	17. 10	22. 46
10	4. 18. 51	6. 59	7. 29. 8	2. 44	17. 19	22. 36
13	5. 3. 45	6. 40	8. 0. 50	2. 32	17. 52	22. 31
16	5. 17. 17	5. 58	8. 3. 26	2. 13	18. 40	22. 29
19	5. 29. 34	5. 4	8. 6. 39	1. 51	19. 37	22. 29
22	6. 10. 48	4. 1	8. 10. 15	1. 28	20. 34	22. 31
25	6. 21. 12	2. 55	8. 14. 8	1. 3	21. 29	22. 34
28	7. 0. 55	1. 48	8. 18. 14	0. 38	22. 18	22. 40
31	7. 10. 5	0. 42	8. 22. 27	0. 15	23. 0	22. 45
VENUS.						
1	0. 3. 46	3. 12 S	9. 23. 34	2. 26 S	23. 48 S	3. 11
7	0. 13. 19	2. 59	10. 0. 31	2. 22	22. 22	3. 15
13	0. 22. 54	2. 40	10. 7. 23	2. 13	20. 35	3. 17
19	1. 2. 30	2. 17	10. 14. 8	2. 0	18. 32	3. 18
25	1. 12. 6	1. 50	10. 20. 47	1. 41	16. 11	3. 17
MARS.						
1	0. 19. 5	0. 54 S	11. 5. 18	1. 9 S	10. 39 S	5. 58
7	0. 22. 40	0. 47	11. 9. 21	0. 59	8. 59	5. 47
13	0. 26. 14	0. 41	11. 13. 25	0. 49	7. 17	5. 35
19	0. 29. 45	0. 35	11. 17. 31	0. 40	5. 33	5. 23
25	1. 3. 15	0. 28	11. 21. 38	0. 31	3. 48	5. 11
JUPITER.						
1	8. 8. 29	0. 40 N	8. 8. 40	0. 34 N	21. 13 S	23. 52
7	8. 8. 57	0. 39	8. 10. 1	0. 33	21. 26	23. 32
13	8. 9. 26	0. 39	8. 11. 22	0. 33	21. 38	23. 11
19	8. 9. 54	0. 38	8. 12. 42	0. 33	21. 49	22. 50
25	8. 10. 23	0. 38	8. 14. 2	0. 32	22. 0	22. 29
SATURN. ☌ 13^{d}. 12$\frac{1}{2}^{h}$.						
1	8. 22. 6	1. 14 N	8. 21. 0	1. 8 N	22. 2 S	0. 48
7	8. 22. 16	1. 14	8. 21. 42	1. 8	22. 4	0. 25
13	8. 22. 27	1. 14	8. 22. 25	1. 7	22. 7	0. 1
19	8. 22. 38	1. 13	8. 23. 8	1. 7	22. 10	23. 36
25	8. 22. 49	1. 13	8. 23. 51	1. 6	22. 13	23. 11

DECEMBER 1781.

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D.M.S.	D. M. S.
1	Sa.	2. 14. 56. 9	2. 21. 6. 12	3.57.18 N	4. 17. 2 N
2	*Su.*	2. 27. 18. 59	3. 3. 34. 35	4.33.51	4. 47. 30
3	M.	3. 9. 53. 3	3. 16. 14. 29	4.57.46	5. 4. 25
4	Tu.	3. 22. 38. 55	3. 29. 6. 25	5. 7,18	5. 6. 20
5	W.	4. 5. 37. 3	4. 12. 11. 0	5. 1.24	4. 52. 28
6	Th.	4. 18. 48. 17	4. 25. 29. 2	4.39.33	4. 22. 44
7	F.	5. 2. 13. 25	5. 9. 1. 27	4. 2. 7	3. 37. 54
8	Sa.	5. 15. 53. 20	5. 22. 49. 6	3.10.18	2. 39. 41
9	*Su.*	5. 29. 48. 50	6. 6. 52. 29	2. 6.23	1. 30. 49
10	M.	6. 14. 0. 0	6. 21. 11. 12	0.53.34 N	0. 15. 9 N
11	Tu.	6. 28. 25. 53	7. 5. 43. 36	0.23.49 S	1. 2. 34 S
12	W.	7. 13. 3. 52	7. 20. 25. 59	1.40.28	2. 16. 49
13	Th.	7. 27. 49. 11	8. 5. 12. 37	2.50.55	3. 22. 6
14	F.	8. 12. 35. 14	8. 19. 56. 3	3.49.46	4. 13. 32
15	Sa.	8. 27. 14. 2	9. 4. 28. 15	4.32.52	4. 47. 42
16	*Su.*	9. 11. 37. 51	9. 18. 42. 2	4.57.46	5. 3. 8
17	M.	9. 25. 40. 16	10. 2. 32. 9	5. 3.52	5. 0. 12
18	Tu.	10. 9. 17. 25	10. 15. 56. 3	4.52.20	4. 40. 36
19	W.	10. 22. 28. 7	10. 28. 53. 54	4.25.22	4. 6. 58
20	Th.	11. 5. 13. 43	11. 11. 28. 2	3.45.47	3. 22. 9
21	F.	11. 17. 37. 25	11. 23. 42. 30	2.56.27	2. 29. 2
22	Sa.	11. 29. 43. 52	0. 5. 42. 16	2. 0.12	1. 30. 17
23	*Su.*	0. 11. 38. 25	0. 17. 32. 56	0.59.34 S	0. 28. 21 S
24	M.	0. 23. 26. 33	0. 29. 20. 0	0. 3. 4 N	0. 34. 24 N
25	Tu.	1. 5. 13. 53	1. 11. 8. 46	1. 5.20	1. 35. 42
26	W.	1. 17. 5. 20	1. 23. 4. 1	2. 5. 5	2. 33. 11
27	Th.	1. 29. 5. 17	2. 5. 9. 28	2.59.46	3. 24. 32
28	F.	2. 11. 16. 52	2. 17. 27. 48	3.47. 5	4. 7. 9
29	Sa.	2. 23. 42. 21	3. 0. 0. 34	4.24.25	4. 38. 37
30	*Su.*	3. 6. 22. 32	3. 12. 48. 8	4.49.29	4. 56. 46
31	M.	3. 19. 17. 18	3. 25. 49. 50	5. 0.17	4. 59. 52

DECEMBER 1781.

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declinat. at Noon.	☽'s Declin. at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	Sa.	17	12. 47	73. 9	79. 59	26. 32 N	27. 27 N
2	*Su.*	18	13. 41	86. 58	94. 2	28. 0	28. 13
3	M.	19	14. 36	101. 10	108. 18	28. 3	27. 31
4	Tu.	20	15. 29	115. 24	122. 25	26. 37	25. 21
5	W.	21	16. 21	129. 20	136. 7	23. 45	21. 50
6	Th.	22	17. 11	142. 46	149. 18	19. 38	17. 9
7	F.	23	17. 58	155. 42	162. 1	14. 28	11. 33
8	Sa.	24	18. 46	168. 15	174. 28	8. 30	5. 18 N
9	*Su.*	25	19. 33	180. 40	186. 54	2. 1 N	1. 20 S
10	M.	26	20. 22	193. 14	199. 40	4. 42 S	8. 2
11	Tu.	27	21. 13	206. 16	213. 4	11. 18	14. 26
12	W.	28	22. 10	220. 5	227. 20	17. 22	20. 4
13	Th.	29	23. 11	234. 51	242. 37	22. 28	24. 30
14	F.	1	☌	250. 34	258. 41	26. 7	27. 18
15	Sa.	2	0. 15	266. 52	275. 3	27. 59	28. 11
16	*Su.*	3	1. 17	283. 8	291. 2	27. 54	27. 10
17	M.	4	2. 17	298. 41	306. 4	26. 1	24. 29
18	Tu.	5	3. 13	313. 8	319. 53	22. 39	20. 32
19	W.	6	4. 2	326. 21	332. 32	18. 13	15. 43
20	Th.	7	4. 46	338. 28	344. 12	13. 6	10. 23
21	F.	8	5. 28	349. 47	355. 13	7. 36	4. 47 S
22	Sa.	9	6. 7	0. 33	5. 50	1. 57 S	0. 53 N
23	*Su.*	10	6. 45	11. 5	16. 21	3. 42 N	6. 27
24	M.	11	7. 24	21. 40	27. 4	9. 10	11. 47
25	Tu.	12	8. 5	32. 34	38. 12	14. 18	16. 42
26	W.	13	8. 49	43. 59	49. 58	18. 58	21. 2
27	Th.	14	9. 36	56. 9	62. 33	22. 54	24. 32
28	F.	15	10. 27	69. 8	75. 56	25. 54	26. 58
29	Sa.	16	11. 20	82. 55	90. 1	27. 43	28. 7
30	*Su.*	17	12. 15	97. 12	104. 27	28. 8	27. 46
31	M.	18	13. 11	111. 41	118. 51	27. 2	25. 55

VII. DECEMBER 1781.

Days of the Month.	Days of the Week.	Semid^{r}. ☽ at Noon.	Semid^{r}. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	Sa.	15. 0	15. 3	55. 4	55. 16	5144	5128
2	*Su.*	15. 7	15. 10	55. 28	55. 40	5112	5097
3	M.	15. 14	15. 18	55. 54	56. 8	5079	5060
4	Tu.	15. 22	15. 26	56. 23	56. 38	5041	5022
5	W.	15. 31	15. 35	56. 54	57. 11	5002	4980
6	Th.	15. 40	15. 45	57. 29	57. 46	4957	4936
7	F.	15. 49	15. 54	58. 4	58. 23	4913	4890
8	Sa.	15. 59	16. 4	58. 41	58. 59	4867	4845
9	*Su.*	16. 9	16. 14	59. 17	59. 34	4823	4802
10	M.	16. 18	16. 22	59. 49	60. 3	4784	4768
11	Tu.	16. 25	16. 28	60. 16	60. 24	4752	4742
12	W.	16. 29	16. 30	60. 31	60. 34	4734	4730
13	Th.	16. 30	16. 29	60. 33	60. 29	4732	4736
14	F.	16. 27	16. 24	60. 21	60. 10	4746	4759
15	Sa.	16. 20	16. 15	59. 55	59. 37	4777	4799
16	*Su.*	16. 9	16. 3	59. 15	58. 53	4826	4853
17	M.	15. 56	15. 49	58. 28	58. 3	4883	4915
18	Tu.	15. 42	15. 35	57. 37	57. 11	4947	4980
19	W.	15. 28	15. 21	56. 46	56. 21	5012	5044
20	Th.	15. 15	15. 10	55. 59	55. 38	5072	5099
21	F.	15. 5	15. 0	55. 20	55. 3	5123	5145
22	Sa.	14. 56	14. 53	54. 49	54. 38	5163	5178
23	*Su.*	14. 51	14. 49	54. 29	54. 24	5190	5197
24	M.	14. 48	14. 48	54. 20	54. 19	5202	5203
25	Tu.	14. 48	14. 49	54. 20	54. 24	5202	5197
26	W.	14. 51	14. 53	54. 29	54. 37	5190	5179
27	Th.	14. 55	14. 58	54. 46	54. 57	5167	5153
28	F.	15. 2	15. 5	55. 9	55. 23	5137	5119
29	Sa.	15. 9	15. 13	55. 37	55. 52	5100	5081
30	*Su.*	15. 18	15. 22	56. 7	56. 22	5062	5042
31	M.	15. 26	15. 30	56. 37	56. 53	5023	5003

Diſtances of ☽'s Center from Sun, and from Stars eaſt of her.

Days.	Stars Names.	Noon. D. M. S.	3 Hours. D. M. S.	6 Hours. D. M. S.	9 Hours. D. M. S.	12 Hours. D. M. S.	15 Hours. D. M. S.	18 Hours. D. M. S.	21 Hours. D. M. S.
1		71. 52. 34	70. 20. 37	68. 48. 32	67. 16. 18	65. 43. 56	64. 11. 24	62. 38. 44	61. 5. 55
2		59. 32. 58	57. 59. 50	56. 26. 33	54. 53. 7	53. 19. 34	51. 45. 51	50. 12. 0	48. 37. 59
3	Regulus.	47. 3. 50	45. 29. 31	43. 55. 2	42. 20. 25	40. 45. 38	39. 10. 42	37. 35. 38	36. 0. 25
4		34. 25. 4	32. 49. 34	31. 13. 57	29. 38. 14	28. 2. 24	26. 26. 29	24. 50. 30	23. 14. 26
5		21. 38. 2							
5		75. 25. 48	73. 48. 4	72. 10. 7	70. 31. 58	68. 53. 35	66. 14. 59	65. 36. 10	63. 57. 7
6	Spica ♍	62. 17. 51	60. 38. 21	58. 58. 37	57. 18. 39	55. 38. 27	53. 57. 59	52. 17. 17	50. 36. 20
7		48. 55. 9	47. 13. 44	45. 32. 4	43. 50. 9	42. 7. 59	40. 25. 34	38. 42. 53	36. 59. 57
8		35. 16. 46							
5							120. 29. 31	118. 58. 31	117. 27. 16
6		115. 55. 47	114. 24. 4	112. 52. 6	111. 19. 54	109. 47. 27	108. 14. 45	106. 41. 48	105. 8. 36
7		103. 35. 9	102. 1. 27	100. 27. 30	98. 53. 17	97. 18. 48	95. 44. 3	94. 9. 3	92. 33. 46
8	The Sun.	90. 58. 14	89. 22. 26	87. 46. 21	86. 10. 1	84. 33. 25	82. 56. 32	81. 19. 24	79. 42. 0
9		78. 4. 21	76. 26. 26	74. 48. 16	73. 9. 50	71. 31. 10	69. 52. 14	68. 13. 3	66. 33. 39
10		64. 54. 0	63. 14. 7	61. 34. 1	59. 53. 42	58. 13. 10	56. 32. 25	54. 51. 28	53. 10. 20
11		51. 29. 2	49. 47. 34	48. 5. 58	46. 24. 15	44. 42. 23	43. 0. 25	41. 18. 21	39. 36. 12
16	Fomal-	50. 16. 53	48. 39. 0	47. 1. 48	45. 25. 23	43. 49. 50	42. 15. 11	40. 41. 40	39. 9. 15
17	haut.	37. 37. 58	36. 8. 1	34. 39. 28	33. 12. 22	31. 46. 50			

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
17	α Arietis.					92. 54. 23	91. 14. 1	89. 34. 4	87. 54. 32
18		86. 15. 25	84. 36. 40	82. 58. 20	81. 20. 24	79. 42. 53	78. 5. 46	76. 29. 2	74. 52. 42
19		73. 16. 45	71. 41. 12	70. 6. 2	68. 31. 15	66. 56. 51	65. 22. 50	63. 49. 12	62. 15. 56
20		60. 43. 2	59. 10. 30	57. 38. 20	56. 6. 31	54. 35. 3	53. 3. 55	51. 33. 7	50. 2. 41
21		48. 32. 36							
21	Aldebaran.	78. 54. 6	77. 23. 29	75. 53. 7	74. 23. 1	72. 53. 10	71. 23. 33	69. 54. 9	68. 24. 58
22		66. 56. 1	65. 27. 15	63. 58. 39	62. 30. 15	61. 2. 1	59. 33. 57	58. 6. 3	56. 38. 19
23		55. 10. 45	53. 43. 20	52. 16. 4	50. 48. 56	49. 21. 57	47. 55. 5	46. 28. 22	45. 1. 46
24		43. 35. 19	42. 8. 58	40. 42. 46	39. 16. 43	37. 50. 49	36. 25. 4	34. 59. 32	33. 34. 14
25		32. 9. 9	30. 44. 21	29. 19. 52	27. 55. 41	26. 31. 51			
25	Pollux.					69. 1. 46	67. 32. 35	66. 3. 17	64. 33. 52
26		63. 4. 21	61. 34. 43	60. 4. 58	58. 35. 4	57. 5. 3	55. 34. 53	54. 4. 33	52. 34. 5
27		51. 3. 27	49. 32. 40	48. 1. 42	46. 30. 34	44. 59. 16	43. 27. 47	41. 56. 8	40. 24. 17
28		38. 52. 15							
28	Regulus.	75. 31. 26	73. 59. 18	72. 26. 58	70. 54. 25	69. 21. 41	67. 48. 45	66. 15. 36	64. 42. 16
29		63. 8. 42	61. 34. 56	60. 0. 58	58. 26. 48	56. 52. 25	55. 17. 49	53. 43. 1	52. 8. 1
30		50. 32. 49	48. 57. 24	47. 21. 48	45. 46. 0	44. 10. 0	42. 33. 48	40. 57. 25	39. 20. 52
31		37. 44. 7	36. 7. 13	34. 30. 10	32. 52. 58	31. 15. 37	29. 38. 8	28. 0. 31	26. 22. 47
J. 1		24. 44. 56							

Diſtances of ☽'s Center from Sun, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	α Arietis.	40. 26. 20	41. 55. 52	43. 25. 41	44. 55. 47	46. 26. 8	47. 56. 45	49. 27. 38	50.58.45
2		52. 30. 7	54. 1. 43	55. 33. 33	57. 5. 36	58. 37. 51	60. 10. 20	61. 43. 3	63.15.58
3		64. 49. 5							
3	Aldebaran.	34. 42. 5	36. 13. 23	37. 45. 5	39. 17. 9	40. 49. 36	42. 22. 24	43. 55. 32	45.28.59
4		47. 2. 46	48. 36. 50	50. 11. 11	51. 45. 49	53. 20. 45	54. 55. 56	56. 31. 23	58. 7. 6
5		59. 43. 5	61. 19. 20	62. 55. 50	64. 32. 36	66. 9. 38	67. 46. 55	69. 24. 27	71. 2.14
6		72. 40. 16							
6	Pollux.	28. 30. 58	30. 10. 24	31. 50. 6	33. 30. 3	35. 10. 16	36. 50. 45	38. 31. 29	40.12.28
7		41. 53. 43	43. 35. 12	45. 16. 57	46. 58. 58	48. 41. 14	50. 23. 47	52. 6. 36	53.49.43
8		55. 33. 5							
8	Regulus.	19. 16. 6	20. 57. 50	22. 40. 4	24. 22. 46	26. 5. 56	27. 49. 33	29. 33. 32	31.17.55
9		33. 2. 41	34. 47. 46	36. 33. 8	38. 18. 50	40. 4. 52	41. 51. 12	43. 37. 48	45.24.42
10		47. 11. 52	48. 59. 18	50. 46. 59	52. 34. 56	54. 23. 7	56. 11. 33	58. 0. 12	59.49. 4
11		61. 38. 9	63. 27. 25	65. 16. 53	67. 6. 32	68. 56. 20			
11	Spica ♍					14. 57. 29	16. 46. 35	18. 35. 59	20.25.39
12		22. 15. 34	24. 5. 41	25. 55. 59	27. 46. 26	29. 37. 0	31. 27. 38	33. 18. 19	35. 9. 3
13		36. 59. 50	38. 50. 37	40. 41. 24	42. 32. 10	44. 22. 53			
17	The Sun.							39. 23. 44	40.56. 9
18		42. 28. 13	43. 59. 55	45. 31. 15	47. 2. 13	48. 32. 48	50. 3. 0	51. 32. 51	53. 2.20

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
19	The Sun.	54. 31. 26	56. 0. 11	57. 28. 35	58. 56. 38	60. 24. 20	61. 51. 42	63. 18. 43	64.45.25
20		66. 11. 48	67. 37. 51	69. 3. 36	70. 29. 3	71. 54. 12	73. 19. 4	74. 43. 40	76. 8. 0
21		77. 32. 4	78. 55. 53	80. 19. 28	81. 42. 50	83. 5. 57	84. 28. 51	85. 51. 33	87.14. 3
22		88. 36. 22	89. 58. 31	91. 20. 31	92. 42. 21	94. 4. 3	95. 25. 37	96. 47. 4	98. 8.24
23		99. 29. 37	100. 50. 44	102. 11. 46	103. 32. 43	104. 53. 36	106. 14. 25	107. 35. 12	108.55.56
24		110. 16. 39	111. 37. 21	112. 58. 3	114. 18. 45	115. 39. 27	117. 0. 10	118. 20. 54	119.41.39
25		121. 2. 26							
22	α Aquilæ.	66. 7. 11	67. 18. 17	68. 29. 36	69. 41. 7	70. 52. 53	72. 4. 46	73. 16. 50	74.29. 4
23		75. 41. 27	76. 53. 57	78. 6. 33	79. 19. 16	80. 32. 5	81. 44. 59	82. 57. 57	84.10.59
24		85. 24. 4							
24	Fomalhaut.	55. 33. 36	56. 56. 37	58. 19. 48	59. 43. 9	61. 6. 39	62. 30. 19	63. 54. 8	65.18. 7
25		66. 42. 15	68. 6. 32	69. 30. 59	70. 55. 36	72. 20. 22	73. 45. 17	75. 10. 22	76.35.37
26		78. 1. 1							
26	α Arietis.	14. 41. 0	15. 54. 13	17. 9. 34	18. 26. 54	19. 46. 0	21. 6. 43	22. 28. 50	23.52.10
27		25. 16. 33	26. 41. 32	28. 7. 14	29. 33. 41	31. 0. 44	32. 28. 15	33. 56. 15	35.24.44
28		36. 53. 42	38. 23. 2	39. 52. 45	41. 22. 51	42. 53. 20	44. 24. 8	45. 55. 16	47.26.43
29		48. 58. 30	50. 30. 35	52. 2. 58	53. 35. 37	55. 8. 32			
29	Aldebaran.					25. 20. 37	26. 49. 24	28. 18. 54	29.49. 5
30		31. 19. 58	32. 51. 27	34. 23. 30	35. 56. 4	37. 29. 8	39. 2. 36	40. 36. 28	42.10.44
31		43. 45. 23	45. 20. 22	46. 55. 42	48. 31. 21	50. 7. 19	51. 43. 35	53. 20. 8	54.56.58
J. 1		56. 34. 3							

The Satellites of JUPITER will not be viſible this Month, JUPITER being too near the SUN.

EXPLANATION and USE
OF THE
ARTICLES
CONTAINED IN THE
ASTRONOMICAL and NAUTICAL EPHEMERIS.

IT may be proper firſt to premiſe, that all the Calculations of the Ephemeris are made according to apparent Time by the Meridian of the Royal Obſervatory at Greenwich: And the Sun's, Planet's, and Moon's Places, with the Particulars depending on them in the 2d, 4th, 5th, 6th, and 7th Pages of each Month, are computed to the Inſtant of apparent Noon, or that of the Sun's Centre paſſing the Meridian of Greenwich.

Apparent Time, at any Place, is that deduced immediately from the Sun, whether from the Obſervation of his paſſing the Meridian, from his Altitude obſerved at a Diſtance from the Meridian, or from his obſerved Riſing or Setting. This Time is different from that ſhewn by Clocks and Watches well regulated at Land, which is called equated or mean Time. This will be explained when we come to treat of the Equation of Time.

The Day is here ſuppoſed, according to the Method of Aſtronomers, to begin at Noon, or 12 Hours later than the civil Day of the ſame Denomination, and to be counted up to 24 Hours, or the ſucceeding Noon, when the next Day begins. Thus the Day of the Month and the Hour of the Day are the ſame in this Method as in the civil Account at Noon, and from Noon till Midnight; but from Midnight till Noon they differ; for whereas in the civil Account a freſh Day is ſuppoſed to begin at Midnight, and the Hours to begin over again, in this Method the Day is ſtill continued beyond Midnight, and the Reckoning of the Hours is continued up to 24. Thus the Diſtances put down to January 10, 15 Hours belong to January 11 at Three in the Morning by civil Reckoning.

There are 12 Pages for every Month. The firſt Column of the firſt Page of each Month contains the Day of the Month; the ſecond, the Day of the Week expreſſed conciſely by the initial Letter or Letters, *Su.* ſtanding for Sunday, M. for Monday, Tu. for Tueſday, W. for Wedneſday, Th. for Thurſday, F. for Friday, and Sa. for Saturday: The third Column exhibits the Sundays and Feſtivals of the Church of England, and other remarkable Days: The laſt Column ſhews at Top the Moon's Phaſes, or the Times of new and full Moon, and of the firſt and laſt Quarter or two Quadratures with the Sun: Beneath are contained miſcellaneous Phænomena, namely, Eclipſes of the Sun and Moon, and Occultations of Planets or fixed Stars not leſs than the fourth Magnitude, by the Moon, as they ſhould happen at Greenwich by the Tables; the Conjunctions of the Moon with all Stars not leſs than the fourth Magnitude, which can be Occultations any where on the Globe, between the Latitudes of 60°. North and 40°. South: The Entrance of the Sun into the ſeveral Signs, and any other remarkable Phænomena.

The Stars are expreſſed by Bayer's Characters of Reference. The Conjunction of the Moon or a Planet with a Star, is denoted by prefixing the Character of the Moon or Planet to that of the Star, the Time of the Conjunction being placed immediately after. The Caſe is the ſame with reſpect to the Occultation of a Star or Planet by the Moon, only this is further diſtinguiſhed by the Addition of Im. or Immerſion, to ſignify the Diſappearance behind the Moon; and Em. or Emerſion, to ſignify the Re-appearance of the ſame. Thus 8^{d} ☽ ϑ ♑ $16^{h}.22'$. ſignifies that the Moon will be in Conjunction with the Star ϑ ♑ on the Eighth Day at $16^{h}.22'$ excluſive of Parallax: And 10^{d}. ☽ ε ♊ Imm. $9^{h}.14'$. Em. $10^{h}.23'$ ſignifies that the Moon will eclipſe ε ♊ on the 10th Day, the Immerſion being at $9^{h}.14'$. and the Emerſion at $10^{h}.23'$. apparent Time at Greenwich.

The

The Occultations ſet down are thoſe only viſible at Greenwich; the Circumſtances of which will commonly not differ very widely in moſt Parts of the Kingdom; but in very diſtant Places they will differ very much, owing to the Change of the Moon's Parallax, or it may become no Occultation at all: The like may be ſaid of Eclipſes of the Sun.

Eclipſes of the Sun, and Occultations of fixed Stars by the Moon, if obſerved in Places whoſe Latitude and Longitude are well determined, may be applied to the Correction of the Lunar Tables; but if made in Places whoſe Latitude only is well known, may be applied to the Determination of the Longitude of the Place; but for this Purpoſe an accurate Calculation muſt be made of the Moon's Parallaxes in Longitude and Latitude, which makes this Method of ſettling the Longitudes of Places, though a very accurate one, leſs convenient in Uſe for Perſons not much verſed in aſtronomical Calculations. However, this ought not to diſcourage Travellers or Mariners from endeavouring to make theſe Obſervations as often and as carefully as poſſible, when they ſhall happen to be at any Place whoſe Longitude they have Reaſon to think has not been well ſettled; ſince the neceſſary Calculations may be made at any Time afterwards by themſelves, at leiſure, or referred to the Skill of Aſtronomers and Mathematicians.

Eclipſes of the Moon are not liable to this Inconvenience; the Longitude of any Place, where an Eclipſe has been obſerved, being deduced immediately by taking the Difference of the Time of the Obſervation and that ſet down in the Ephemeris, and converting it into Degrees, at the Rate of 15° to One Hour, *&c.* or more briefly by Table Pages 6, 7, 8, of the Tables requiſite to be uſed with the Ephemeris. But, as the Beginning or Ending of an Eclipſe of the Moon cannot be generally obſerved nearer than One Minute, and ſometimes Two or Three Minutes of Time, the Longitudes of Places cannot be certainly determined by this Method from a ſingle Obſervation of the Beginning or End nearer than a Degree. It is unneceſſary to mention that even this Point of Exactneſs will often be of great Service. If both the Beginning and End of the Eclipſe be obſerved, a greater Degree of Exactneſs will be attained.

The Conjunctions of the Moon with the Planets, or fixed Stars not leſs than the fourth Magnitude, which may prove

Occultations in ſome inhabited Parts of the Globe, are evidently deſigned to inſtruct Mariners or Travellers to look out frequently for ſuch Obſervations; which if they happen to prove Occultations, and are carefully obſerved, will afford a certain Means of determining the Longitude of the Place of Obſervation.

The Two firſt Columns of the Second Page of the Month contain the Day of the Month and Week as before; next follow the Sun's Longitude, right Aſcenſion in Time, Declination, and the Equation of Time, with the Difference from Day to Day.

The Longitude of the Sun is made uſe of in moſt of the ſucceeding Calculations of the Ephemeris, and may ſerve either to verify them, or to make other ſimilar Calculations at a different Time of the Day. Particularly it may ſerve, with the Help of the Moon's Longitude, to find the Diſtance of the Moon from the Sun at any Time, independent of the Diſtances contained in the 8th, 9th, 10th, and 11th Pages of the Month. To find the Sun's Longitude at any Time different from Noon, Proportion muſt be made according to its daily Increaſe: Saying as 24^h. is to the Hour from Noon reckoned by the Meridian of Greenwich, ſo is the daily Variation of the Sun's Longitude, to a fourth Number; which added to the Sun's Longitude at the preceding Noon, gives the true Longitude at the given Time.

If the Time given be that of a Meridian different from Greenwich, it muſt be firſt reduced thereto, by adding or ſubſtracting the Difference of Longitude turned into Time (at the Rate of One Hour to 15°, and One Minute of Time to 15 Minutes, or more briefly by Pages 6, 7, and 8, of the requiſite Tables) according as the Place is to the Weſt or to the Eaſt of Greenwich. Example: Suppoſe any one ſhould want to know the Sun's Longitude, January 19, 1767, at 4^h. 35′. being in 21°. 15′, Longitude Eaſt of Greenwich. The Difference of Longitude turned into Time by Table Page 6, is 1^h. 25′ which ſubſtracted from 4^h. 35′, becauſe the Place is Eaſt of Greenwich, leaves 3^h. 10′, for the Time reduced to the Meridian of Greenwich. The Sun's Longitude the preceding Noon is 9^s. 29°. 18′. 2″, and the following Noon is 10^s. 0°. 19′. 4″. the Difference is, 1°. 1′. 2″, or 61′. 2″, the daily Variation. Then ſay, as 24^h. is to 3^h. 10′, ſo is 61′. 2″ to 8′. 3″. which added to 9^s. 29°. 18′. 2″, the Sun's Longitude on the preceding Noon, gives 9^s. 29°. 26′. 5″ the Sun's Longitude at the

the Time given. In like Manner any other of the following Articles is to be found by the Help of the Ephemeris.

The Sun's Longitude ſerves alſo to compute the Aberration of the fixed Stars and Planets.

The Sun's right Aſcenſion in Time is uſeful to the practical Aſtronomer in regular Obſervatories, who adjuſts his Clocks by ſidereal Time. It is alſo uſeful to him for converting apparent into ſidereal Time; as ſuppoſe that of an Eclipſe of Jupiter's Satellites, in order to know at what Time it may be expected to happen by his Clocks: For this Purpoſe, the Sun's right Aſcenſion at the preceding Noon, together with the Increaſe of right Aſcenſion from Noon, muſt be added to the apparent Time of the Phænomenon ſet down in the Ephemeris.

The Sun's right Aſcenſion in Time ſerves alſo to compute the apparent Time of a known Star's paſſing the Meridian: Thus, ſubtract the Sun's right Aſcenſion in Time at Noon from the Star's right Aſcenſion in Time, the Remainder is the apparent Time of the Star's paſſing the Meridian nearly; from which the proportional Part of the daily Increaſe of the Sun's right Aſcenſion for this apparent Time from Noon being ſubſtracted, leaves the correct Time of the Star's paſſing the Meridian.

Hence the apparent Time may be found from an obſerved Altitude of a known fixed Star, ſuppoſe one contained Page 12 or 13 of the requiſite Tables; as will be explained hereafter.

The Sun's right Aſcenſion in Time is alſo uſeful for computing the Time of the Moon and Planets paſſing the Meridian, as will be ſhewn under their proper Articles.

The Sun's Declination is neceſſary to find the Latitude, whether at Sea or Land, from the Meridian Altitude obſerved; it is alſo requiſite for finding the Latitude from Two Altitudes obſerved with the Interval of Time meaſured by a Watch; it ſerves for computing the Sun's Azimuth, having his Altitude and the Latitude of the Place given, in order to find the Variation of the Compaſs; it is required jointly with the Latitude of the Place and the Sun's horary Angle to compute his Altitude, if neglected to be obſerved at the Time of taking the Moon's Diſtance from the Sun for finding the Longitude, being uſeful to facilitate the Calculation of the Effect of Refraction and Parallax upon the Diſtance; it is alſo neceſſary to calculate the apparent Time from an obſerved Altitude of the Sun at a Diſtance

from

from the Meridian, the Latitude being given; or to compute the Time of the Sun's Setting or Riſing; which, though a leſs accurate Method than the former of obtaining the Time, may yet be uſeful when that cannot be had. For any of theſe Purpoſes, the Sun's Declination muſt be found to the Time given nearly reduced to the Meridian of Greenwich, making Proportion according to the daily Increaſe or Decreaſe, in like Manner as was ſhewn with reſpect to the Sun's Longitude.

The Equation of Time is a Correction, which added to or ſubſtracted from the apparent Time (according to its Title at the Top of the Column) gives equated or mean Time, or that which ſhould be ſhewn by a good Clock or Watch. Apparent Time is that which takes its Beginning from the Paſſage of the Sun's Centre over the Meridian of any Place; and had the Sun no Motion in the Ecliptic, or was his Motion reduced to the Equator or in right Aſcenſion uniform, he would always return to the Meridian after equal Intervals of Time. But his apparent Motion in the Ecliptic being continually varying, and his Motion in right Aſcenſion being rendered further unequal on account of the Obliquity of the Ecliptic to the Equator, from theſe Cauſes it ariſes that the Intervals of his Return to the Meridian become unequal, and the Sun will gradually become too ſlow or too ſoon to the Meridian for an equable Motion, ſuch as that of Clocks and Watches ought to be.

This Retardation or Acceleration of the Sun's coming to the Meridian is called the Equation of Time, and is contained in the laſt Column but One of Page 2d; and when applied according to its Title to the apparent Time, or that deduced immediately from the Sun, gives the mean or equated Time, whence the Error of a Clock or Watch may be found, and, if required, it may be corrected.

If it is propoſed to convert mean Time into apparent, this is done by a contrary Proceſs, by applying the Equation of Time to the mean Time given, with its Title or Sign changed; *viz.* ſubſtracting inſtead of adding, and adding inſtead of ſubſtracting.

The Equation of Time being ſet down in the Ephemeris for the Noon at Greenwich, Proportion muſt be made according to the daily Difference, to find what it ſhould be at any given Time reduced to the ſame Meridian, as in the preceding Articles. The laſt Column of this Page, containing the daily Differences of the Equation, is deſigned for this Purpoſe.

As

As often as it may be required to make any Calculations from aſtronomical Tables, and the Time given be apparent Time; it is neceſſary firſt to apply the Equation of Time thereto to convert it into mean Time, the Tables being diſpoſed according to mean Motions. Thus the Articles contained in the Ephemeris anſwering to Noon were computed to 0^{h}. increaſed, or 24 Hours diminiſhed, by the Equation of Time: And the Moon's Places ſet down for Midnight were computed to 12^{h}. increaſed or diminiſhed by the Equation of Time.

What has been ſhewn concerning the Equation of Time chiefly reſpects the Aſtronomer, the Mariner having nothing to do with it in computing his Longitude from the Moon's Diſtances from the Sun and Stars obſerved at Sea with the Help of the Ephemeris, all the Calculations thereof being adapted to apparent Time, the ſame which he will obtain by the Altitudes of the Sun or Stars in the Manner hereafter preſcribed.

But if Watches made upon Mr. John Harriſon's or other equivalent Principles ſhould be brought into Uſe at Sea, the apparent Time deduced from an Altitude of the Sun muſt be corrected by the Equation of Time, and the mean Time found compared with that ſhewn by the Watch, the Difference will be the Longitude in Time from the Meridian by which the Watch was ſet; as near as the Going of the Watch can be depended upon.

The Equation of Time is computed in the Manner explained in my Remarks upon that Subject, in the Philoſ. Tranſact. Vol. liv. P. 342 for the Year 1764; namely, by taking the Difference of the Sun's true right Aſcenſion, and his mean Longitude corrected by the Equation of the Equinoxes in right Aſcenſion, and turning it into Time at the Rate of 1′. to 15′. *&c.* The Equation of Time will be additive or ſubſtractive as the Sun's true right Aſcenſion is greater or leſs than his mean Longitude.

The Semidiameter of the Sun, Page 3d, is neceſſary to reduce the obſerved Altitude of his upper or lower Limb to that of the Centre; alſo to reduce the obſerved Diſtance of the Moon's neareſt Limb from the Sun's neareſt Limb to the Diſtance of the Centres. It is alſo uſeful to Aſtronomers to verify or aſcertain the Exactneſs of the Scale of their Micrometers, by Compariſon with the Meaſure of the Sun's horizontal Diameter. This Practice is particularly uſeful in ſolar

Eclipſes, when the Diſtance of the Cuſps or the Verſe Sine of the uneclipſed Part has been meaſured with the Micrometer. The Semidiameters of the Sun in Mayer's Tables, on which all the Calculations reſpecting the Sun and Moon are made, ſuppoſe the Semidiameter at the mean Diſtance to be 16'. 2'', 8. which Mr. Mayer ſays he deduced from above 130 Obſervations taken with his Six Feet mural Quadrant, which ſeemed to him not ill adapted to the Purpoſe. It may not be amiſs to take this Opportunity to remark, that the Quadrant here mentioned was given to the Univerſity of Gottingen by his late Majeſty, and was made by that ingenious Artiſt the late Mr. John Bird after the Model of the Eight Feet mural Arch, which he finiſhed for the Royal Obſervatory at Greenwich, and put up there in the Year 1750. Mr. Mayer made his Obſervations with his Six Fee tmural Arch, from the Year 1756, to the Time of his Deceaſe; with it he ſettled the mean Obliquity of the Ecliptic to the Beginning of the Year 1756, at 23°. 28'. 16'' which Dr. Bradley ſettled by his Obſervations made in the Years 1750 and 1751, at 23°. 28'. 18''. The Difference is agreeable to what ought to ariſe from the gradual Diminution of the Obliquity of the Ecliptic at the Rate of about ½ a Second in a Year. The ſame Inſtrument he alſo uſed in ſettling the Elements of his ſolar Tables; and it is moſt probable that with the ſame he ſettled his Table of Refractions at the End of his ſolar Tables; the Agreement of this Table with Dr. Bradley's, ſee Page 2d of requiſite Tables (being both ſuited to the ſame Temperature of the Air) is ſo great, that they ſeem rather like One and the ſame than Two different Tables,

The Time of the Sun's Sediameter paſſing the Meridian, ſerves to reduce an Obſervation of a Tranſit of the preceding or ſubſequent Limb over the Meridian to that of the Centre, when only One was obſerved. It ſignifies a Portion of apparent Time, or even mean Time, the Difference being abſolutely inſenſible upon ſo ſmall an Interval. It is found thus: Increaſe the Sun's Semidiameter in the Ratio of the Coſine of his Declination to the Radius, to find his Semidiameter in right Aſcenſion, which turned into Time at the Rate of 1'. to 15'. and 1''. to 15''. gives the Time required. The Sun's Semidiameter in right Aſcenſion is readily found by adding the Log. Coſine of his Declination to the logiſtic Logarithm of his Semidiameter, the Sum is the logiſtic Logarithm of his Semidiameter in right Aſcenſion; which divided by 15 gives the Time of his Semidiameter

meter paſſing the Meridian. If the Clock by which the Obſervation is made be regulated according to the ſiderial Time, this Quantity muſt be increaſed in the Ratio of 365 to 366, if great Preciſion is required.

From the Time of the Sun's Semidiameter paſſing the Meridian may be alſo found the Time of its paſſing the horizontal or vertical Wire of a Quadrant or Sextant, which on ſome Occaſions may have its Uſe.—The hourly Motion of the Sun is uſeful in computing ſolar and lunar Eclipſes; alſo in correcting the aſſumed Longitude of the Ship, in order to find the Time from an Obſervation of the Diſtance of the Moon from the Sun, independent of the Diſtances contained in the Nautical Ephemeris; See Britiſh Mariner's Guide, Page 49, and Table at the End of the ſame, Page 25, which is alſo copied at Page 14 of requiſite Tables. The Logarithm of the Sun's Diſtance is uſeful in the Calculation of the Places of the Planets and Comets. The Place of the Moon's Node ſignifies its mean Longitude, and is neceſſary for finding the Equation of the equinoctial Points both in Longitude and right Aſcenſion, the Equation of the Obliquity of the Ecliptic, and the Deviations of the fixed Stars in right Aſcenſion and Declination.

The Eclipſes of Jupiter's Satellites are well known to afford the readieſt, and for general Practice the beſt Method of ſettling the Longitudes of Places at Land; and it is by their Means principally that Geography has been ſo much reformed within a Century paſt, and the Poſition of the moſt diſtant Places determined to equal Accuracy with the neareſt. It was hoped that ſome means Might be found of uſing proper Teleſcopes on Shipboard to obſerve theſe Eclipſes; and could this be effected, it would be of great Service in aſcertaining the Longitude of a Ship from time to time. In my Voyage to Barbadoes under the Direction of the Commiſſioners of Longitude, I made a full Trial of the late Mr. Irwin's Marine Chair propoſed for this Purpoſe, but found it totally impracticable to derive any Advantage from the Uſe of it; and, conſidering the great Power requiſite in a Teleſcope for making theſe Obſervations well, and the Violence as well as Irregularities of the Motion of a Ship, I am afraid the complete Management of a Teleſcope on Shipboard will always remain among the Deſiderata. However, I would not be underſtood to mean to diſcourage any Attempt founded upon good Principles to get over this Difficulty.

The Teleſcopes proper for obſerving the Eclipſes of Jupiter's Satellites, are common refracting Teleſcopes, from 15 to 20 Feet, reflecting Teleſcopes of 18 Inches or Two Feet focal Length, and Teleſcopes of Mr. Dollond's Conſtruction with Two Object Glaſſes from Five to 10 Feet; or, which are ſtill more convenient, thoſe of 46 Inches focal Length, conſtructed with Three Object Glaſſes, which are as manageable as reflecting Teleſcopes, and perform as much as thoſe which he makes of 10 Feet with Two Object Glaſſes.

The Eclipſes of Jupiter's Satellites are obſerved by Aſtronomers at Land, as well in order to provide Materials for improving the Theories and Tables of their Motions, as for the ſake of Compariſon with the correſponding Obſervations which may be made by Perſons in different Parts of the Globe, whereby the Longitude of ſuch Places will be accurately aſcertained. It is indeed to be lamented that Perſons who viſit diſtant Countries are not more diligent to multiply Obſervations of this Kind, for want of which, the Obſervations made by Aſtronomers in eſtabliſhed Obſervatories loſe Half their Uſe, and the Improvement of Geography ſeems to be at a Stand. But it is to be hoped that an Emulation will ſpring up among thoſe who may have Opportunities of rendering ſo uſeful a Service to the Public, to incite them to watch diligently for the Occaſions of obſerving theſe Eclipſes carefully, particularly of the Firſt and Second, which are moſt exact for the Purpoſe. The Eclipſes carefully calculated and ſet down in the Ephemeris, will ſerve to advertiſe them and Obſervers in general of the Times when they ſhould attend to theſe Obſervations. The Perſon who ſhall be under any Meridian different from Greenwich, muſt turn his Difference of Longitude into Time: See Table Page 6, 7, and 8, and add it to or ſubſtract it from the Time of the Eclipſe ſet down in the Ephemeris, according as he is to the Eaſt or Weſt of Greenwich, to find the apparent Time at which the Eclipſe will happen at his Meridian, nearly. He muſt further take care to regulate his Watch or Clock by apparent Time, or at leaſt to know the Difference, as well in order to apprize him of the Time to look out for the Eclipſe, as for aſcertaining the apparent Time exactly at which he ſhall obſerve it. Equal Altitudes of the Sun or Stars taken with an aſtronomical Quadrant afford the beſt Means of regulating Clocks and Watches for occaſional Obſervations; or they may be taken with a Hadley's Quadrant, by Reflection from a Baſon of Water or Quickſilver, or from the Horizon of the Sea, if the Obſerver has an open Proſpect, and is not elevated above 5 or 600 Feet above the Level of the Sea. But, if Opportunity does not admit of taking equal Altitudes, the Time may be determined from One Altitude taken in any of the Methods above-mentioned, at leaſt Two or Three Points of the Compaſs diſtant from the Meridian, but the nearer to the Eaſt or Weſt the better, the Latitude of the Place being known, or being found by Obſervations of the Meridian Altitude of the Sun or Stars made on Purpoſe. It will be better to take ſeveral Altitudes in order to take a Mean of the Reſults for greater Certainty. And if one Star be obſerved to the Eaſt and the other to the Weſt of the Meridian, the Time will be determined with rather more Certainty. The Manner of computing the apparent Time from the Altitude of the Sun or a Star will be ſhewn when we come to treat of the Method of finding the Longitude by the Obſervations of the Diſtance of the Moon from the Sun and Stars by the Help of the Ephemeris.

The Obſerver being in a Place whoſe Longitude is well known, ſhould be ſettled at his Teleſcope Three Minutes before the expected Time of an Immerſion of the firſt Satellite; Six or Eight Minutes before that of the ſecond and third Satellites; and a Quarter of an Hour or more before that of the fourth Satellite; chiefly on account of the Uncertainty of their Theories; but, if the Longitude of the Place is very uncertain, he muſt begin to look out for the Eclipſe proportionably ſooner: Thus, if the Longitude of the Place is uncertain to 3 Degrees, anſwering to 12 Minutes of Time, he ought to fix himſelf to his Teleſcope 12 Minutes ſooner than is mentioned above. Nevertheleſs, when he has obſerved One Eclipſe of any Satellite, and thereby found the Error of the Tables, he may allow the ſame Correction to the Calculations of the Ephemeris for ſeveral Months, which will advertiſe him very nearly of the Time of expecting the Eclipſes of the ſame Satellite, and diſpenſe with his attending ſo long.

The Immerſions ſignify the Inſtant of the Diſappearance of the Satellite by entering into the Shadow of Jupiter; and the Emerſions ſignify the firſt Inſtant of its Appearance at coming out of the ſame. They generally happen when the Satellite is at ſome Diſtance from the Body of Jupiter, except near the Oppoſition of Jupiter to the Sun, when the Satellite approaches nearer to his Body. Before the Oppoſition of

Jupiter to the Sun the Immerſions and Emerſions happen on the Weſt Side of Jupiter, and after the Oppoſition on the Eaſt Side; but if an aſtronomical Teleſcope be uſed, which reverſes Objects, the Appearances will be directly the contrary. Before the Oppoſition, the Immerſions only of the firſt Satellite are viſible; and after the Oppoſition, the Emerſions only. The ſame is generally the Caſe with reſpect to the ſecond Satellite; both the Phænomena of the ſame Eclipſe are frequently obſervable in the Two outer Satellites. The Immerſions and Emerſions marked with an Aſteriſk in the Ephemeris are thoſe viſible at Greenwich.

To know if an Eclipſe will be viſible in any Place, find if Jupiter is 8°, or 10° above the Horizon of the Place, and the Sun as much below it. This may be done near enough by a celeſtial Globe: Otherwiſe, the Time of the Sun's Riſing and Setting may be found for any Latitude by a Table of ſemidiurnal Arcs, contained in the popular Book called the Mariner's Compaſs Rectified, and many other Books; the Time of Jupiter's Riſing and Setting may alſo be found from the Time of his paſſing the Meridian and Declination ſet down in the Ephemeris, with the Help of the ſame Table of ſemidiurnal Arcs; adding or ſubſtracting the ſemidiurnal Arc anſwering to the ſame Declination of the Sun: Remembering always that if Jupiter's Declination and the Latitude of the Place are of the ſame Denomination, the ſemidiurnal Arc will be more than Six Hours, and if they are of contrary Denominations, will be leſs than Six Hours.

The Immerſion or Emerſion of any Satellite being carefully obſerved in any Place according to apparent Time, the Longitude from Greenwich is found immediately by taking the Difference of the Obſervation from the correſponding Time ſhewn in the Ephemeris, which muſt be turned into Degrees, *&c.* by Table Page 6, 7, and 8; and will be Eaſt or Weſt of Greenwich, as the Time obſerved is more or leſs than that of the Ephemeris.

Example; Suppoſe an Emerſion of the firſt Satellite ſhould be obſerved at the Cape of Good-Hope, May 9, 1767, at $10^{h}. 46'. 45''$ apparent Time: The Time by the Ephemeris being $9^{h}. 33'. 12''$, the Difference is $1^{h}. 13'. 33''$, whence by Table Page, 6, 7, and 8, the Longitude of the Cape ſhould be $18°. 23'. 15''$, Eaſt of Greenwich, becauſe the Time ſuppoſed to be obſerved at the Cape is more than that of the Ephemeris.

It is to be obſerved that a correſpondent Obſervation of an Eclipſe of a Satellite of Jupiter, made under a well-known Meridian, is to be preferred to the Calculations of the Ephemeris for comparing with an Obſervation made in a Meridian whoſe Longitude is required; but if no correſponding Obſervation can be obtained, as is frequently the Caſe, it will be beſt to find what Correction the Calculations of the Ephemeris require by the neareſt Obſervations to the given Time that can be obtained; which Correction, applied to the Calculation of the given Eclipſe in the Ephemeris, renders it almoſt equivalent to an actual Obſervation.

The Longitudes and Latitudes of the Planets, Page 4, ſerve to know where to look for them in the Heavens, and when their Places may be conveniently ſettled by comparing them with fixed Stars by the Help of a Micrometer in a Teleſcope. They alſo ſhew when they are in the moſt important Points of their Orbits, where it is moſt material to obſerve them. They alſo ſerve to enable Perſons leſs ſkilled to diſtinguiſh them from the fixed Stars. Their Declinations and apparent Time of paſſing the Meridian are particularly uſeful to Aſtronomers who are furniſhed with Quadrants and Tranſit Inſtruments well fixed in the Meridian, in ſetting their Inſtruments for obſerving their right Aſcenſions and Declinations.

The apparent Time of a Planet's paſſing the Meridian may be computed thus; the Planet's right Aſcenſion being calculated from its Longitude and Latitude, and turned into Time, ſubſtract the Sun's right Aſcenſion at Noon in Time from it, to find the Time of the Planet's paſſing the Meridian nearly, which call T; take the Difference of the ⊙ and Planet's daily Variations in right Aſcenſion in Time, if the Planet is progreſſive in right Aſcenſion, or the Sum if it is retrograde, which call X; then ſay, by the Rule of Proportion;

As $24^{h}\cdot \mp X : T :: X : e$ and $T \pm e$ will be the correct Time of the Planet's paſſing the Meridian. The upper Signs are to be uſed both to X and e if the Planet's progreſſive Motion in right Aſcenſion be greater than that of the Sun; in any other Caſe the lower Signs are to be made uſe of.

But perhaps it may be found more readily by continual Approximation as follows: Take the proportional Part of the Difference or Sum of the ⊙ and Planet's daily Motion in right Aſcenſion, anſwering to the Time of the Planet's paſſing the Meridian, found nearly, in Proportion to 24^{h}. and take a further like proportional Part of this proportional Part; and again

again of this laſt, and ſo on as far as is neceſſary. The Sum of all theſe proportional Parts added to the Time of the Planet's paſſing the Meridian found nearly, if the Planet's progreſſive Motion in right Aſcenſion is greater than that of the Sun, otherwiſe ſubſtracted, gives the apparent Time of the Planet's paſſing the Meridian.

Example: Let it be required to find the Time of the Moon's paſſing the Meridian, July 1, 1767.

The Sun's right Aſcenſion in Time July 1ſt is, $6^{h}.40'.25''$. and July 2d, $6^{h}.44'.33''$ by the Ephemeris. Therefore his daily Motion in right Aſcenſion is $4'.8''$. The Moon's right Aſcenſion July 1ſt at Noon by the Ephemeris, is $159^{\circ}.2'$ anſwering to $10^{h}.36'.8''$ of Time, and July 2d is, $169^{\circ}.39'$, anſwering to $11^{h}.18'.36''$. The Difference is, $42'.28''$ of Time, from which $4'.8''$ being ſubſtracted, leaves $38'.20''$. Subſtract $6^{h}.40'.25''$, the Sun's right Aſcenſion July 1ſt at Noon, from $10^{h}.36'.8''$, the Moon's right Aſcenſion the ſame Noon, the Remainder $3^{h}.55'.43''$, is the Approximate Time of the Moon's paſſing the Meridian. The proportional Part of $38'.20''$ anſwering to this, is $6'.17''$, and the proportional Part of $6'.17''$ is $9''$; therefore $6'.17''$ and $9''$ or $6'.26''$ added to $3^{h}.55'.43''$ give $4^{h}.2'.9''$, the apparent Time of the Moon's paſſing the Meridian. In the Ephemeris it is $4^{h}.2'$. It may alſo be computed by taking the Difference of the Moon's right Aſcenſion at Noon and Midnight, but then Half the Sun's daily Variation in right Aſcenſion muſt be made uſe of, and Proportion muſt be made for 12 inſtead of 24 Hours: And if the Moon paſſed the Meridian after Midnight, the Sun's right Aſcenſion at Midnight muſt be uſed, which is a Mean between his right Aſcenſions on the preceding and ſubſequent Noon. For the Planets, it will be ſufficient to take the firſt proportional Part only.

The Days of the Oppoſitions, Quadratures, &c. of the Planets to the Sun, are Times at which they ought to be obſerved in fixed Obſervatories, for ſettling the Elements of their Orbits by a Series of ſeveral Years Obſervations.

The 5th, 6th, 7th, 8th, 9th, 10th, and 11th Pages of each Month contain the Moon's Place, and all the Circumſtances relating to her Motions, and her Diſtances from the Sun and proper Stars, from which her Diſtance ſhould be obſerved for finding the Longitude at Sea. The Longitudes, Latitudes, and Declinations of the Moon, and Time of her paſſing the Meridian, afford the like Uſes with the ſame Circumſtances

Circumſtances of the Planetary Motions, and many more beſides. For the ſake of greater Preciſion, the Moon's Longitude, Latitude, Right Aſcenſion, Declination, Semidiameter, horizontal Parallax, with its logiſtic or proportional Logarithm, are computed twice a Day, to Noon and Midnight, and may readily be inferred to any intermediate Time with the greateſt Exactneſs.

Example: Let it be required to find the Moon's Longitude and Latitude, *&c.* July 16, 1767, at $16^h.\ 22'.\ 16''$. Firſt to find the Longitude. The Moon's Longitude, July 16, at 12^h. is $0^s.\ 6^\circ.\ 40'.\ 25''$. and July 17 at Noon, $0^s.\ 13^\circ.\ 47'.\ 48''$. the Difference $7^\circ.\ 7'.\ 23''$ is the Moon's Motion in 12 Hours; ſay then, by the Rule of Proportion,

As 12^h. is to $4^h.\ 22'.\ 16''$ (the Exceſs of $16^h.\ 22'.\ 16''$ above 12^h.) ſo is $7^\circ.\ 7'.\ 23''$ to $2^\circ.\ 35'.\ 41''$, which added to $0^s.\ 6^\circ.\ 40'.\ 25''$, the Moon's Longitude at 12^h. gives $0^s.\ 9^\circ.\ 16'.\ 6''$, the Moon's Longitude nearly; but this muſt be corrected on account of the Moon's unequal Motion in 12 Hours, by Page 11 of Requiſite Tables; for this Purpoſe take out of the Ephemeris the Two Longitudes of the Moon next preceding the given Time, and the Longitudes immediately following it, and ſet them down in Order one after another, as follows.

	s ° ′ ″	1ſt Diff. ° ′ ″	2d Diff. ′ ″
July 16, Noon	11. 29. 29. 34		
Midnight	0. 6. 40. 25	7. 10. 51	
17, Noon	0. 13. 47. 48	7. 7. 23	3. 28
Midnight	0. 20. 51. 27	7. 3. 39	3. 44

Take their Differences, $7^\circ.\ 10'.\ 51''$, $7^\circ.\ 7'.\ 23''$, $7^\circ.\ 3'.\ 39''$, take the Differences of theſe Differences, or the 2d Differences, $3'.\ 28''$; $3'.\ 44''$. and take their Mean which is $3'.\ 36''$. Now look for the Correction in Page 11 of Requiſite Tables anſwering to $4^h.\ 22'$ after Midnight, found on the Side, and $3'.\ 36''$ at Top, $21''$ will be found under $3'$. and $28''$. under $4'$. the Difference is $7''$. when $36''$ will require $4''$, and the Correction ſought is $21''+4''=25''$. which, according to the Remark at the Bottom of the Table, muſt be added (becauſe the Motion in 12 Hours or firſt Differences are decreaſing to $0^s.\ 9^\circ.\ 16'.\ 6''$, the Moon's Longitude found by even Proportion;

Proportion; whence the Moon's true Longitude is 0^{s}. 9°. 16′. 31″, and is as correct as the Longitudes from which it is deduced.

N. B. If the firſt Differences of the Four Longitudes of the Moon taken out firſt increaſe and then decreaſe, or, vice verſâ, firſt decreaſe and then increaſe, take Half the Difference of the Two ſecond Differences for the Mean ſecond Difference, with which take the Correction from Page 11, and add or ſubſtract it as the Firſt firſt Difference is greater or leſs than the Third firſt Difference.

To find the Moon's Latitude. Take out of the Ephemeris the Two Latitudes preceding and Two following the given Time, and ſet them down in Order, and take their firſt and ſecond Differences, and the Mean of the Two ſecond Differences; find the proportional Part of the Middle firſt Difference anſwering to the Hours and Minutes, *&c.* of the given Time after Noon or Midnight; which correct in the following Manner: Entering Table Page 11 with the Hour from Noon or Midnight on the Side, and the Mean ſecond Difference at Top, take out the correſponding Number of Seconds, which added to or ſubſtracted from the proportional Part found above, according as the Motion in 12 Hours or firſt Differences are decreaſing or increaſing; or, more generally, according as Firſt firſt Difference is greater or leſs than Third firſt Difference, gives the proportional Part corrected; which now added to or ſubſtracted from the Moon's Latitude at the preceding Noon or Midnight, as the Latitude in theſe 12 Hours is increaſing or decreaſing, gives the Moon's Latitude correct.

Example: The Moon's Latitude is required, July 16, 16^{h}. 22′. 16″.

	☽'s Lat. by the Ephem.	1ſt Dif.	2d Dif.	Mean of 2d Dif.
	° ′ ″	′ ″	′ ″	′ ″
July 16. Noon	4. 31. 10 N.	18. 26		
Midnight	4. 49. 36	13. 50	4. 36	4. 40
17 Noon	5. 3. 26	9. 6	4. 44	
Midnight	5. 12. 32			

The Moon's Latitude July 16 at Midnight being 4°. 49′ 36″. N. and the Motion in the next 12 Hours being 13′. 50″. ſay by Proportion, As 12^h. is to $4^h. 22'. 16''$, ſo is $13'. 50''$, to $5'. 2''$; but this muſt be corrected by adding $33''$. the Correction from Page 11, anſwering to the Hour $4^h. 22'$, and the Mean ſecond Difference $4'. 40''$, becauſe the firſt Differences are decreaſing, or rather becauſe the firſt of them $18'. 26''$, is greater than the laſt of them $9'. 6''$, thereſore the proportional Part corrected is $5'. 2'' + 33'' = 5'. 35''$, which added to $4°. 49'. 36''$, gives $4°. 55'. 11''$ N. the Moon's Latitude correct.

Remarks on ſome Circumſtances neceſſary to be attended to, in order to obtain and apply the Correction of ſecond Differences rightly in computing the Moon's Latitude.

I. If the Moon's Latitude taken out of the Ephemeris for Noon and Midnight changes its Denomination from North to South or from South to North, the Sum of the Two Latitudes of contrary Denominations, where the Change happens, is to be accounted the firſt Difference in that Place.

II. If the Three firſt Differences firſt increaſe and then decreaſe, or vice verſâ, firſt decreaſe and then increaſe, Half the Difference of the Two ſecond Differences is to be taken for the Mean ſecond Difference.

III. If the Series of Four Latitudes taken out ſhould firſt increaſe and then decreaſe about the Moon's greateſt Latitudes, take the Sum of the Two firſt Differences ſtanding on each Side of the greateſt Latitude for the ſecond Difference in that Place; correct the Moon's Latitude at Noon or Midnight by the ſimple proportional Part firſt found; and to the Latitude ſo corrected, add always in this Caſe the Correction from Table Page 11, anſwering to the Mean of the Two ſecond Differences.

Before I quit this Subject of Interpolation by ſecond Differences, I ſhall point out another Method, by which the ſame End may be obtained more readily, and with fewer Rules, by thoſe who are well acquainted with algebraic Subſtraction and Addition, and the Manner of applying the Signs in thoſe Operations. Subſtract each Latitude from the following for the firſt Differences, to which prefix the Sign — if the Latitudes decreaſe; and ſubſtract each firſt Difference, thus found, from the following one of the ſame Order for the ſecond Differences. Half the Sum of the Two ſecond Differences ſtanding on each Side of the Interval to be interpolated, is to be accounted the Mean ſecond Difference; the Correction correſponding to it by Table Page 11, is to be applied always with the contrary Sign.

Theſe Operations are to be performed, and the Signs to be applied as in algebraic Subſtraction and Addition. Note further, if the Four given Latitudes change their Denomination, call the ſecond Latitude +, and thoſe of a contrary Denomination —.

The Moon's Declination may be found at any Hour in the ſame Manner as her Latitude; but as the Correction ariſing from ſecond Differences will never exceed 2½, this may be neglected on moſt Occaſions; but if any one is deſirous to obtain the Declination true to a Minute, the Correction is eaſily applied, as ſhewn above.

The other Articles of Page 7, and 8, *viz.* the Moon's right Aſcenſion, her Semidiameter, horizontal Parallax, with its Logarithm, and the Diſtances contained in the Four laſt Pages of the Month, may be all found correctly by even Proportion, without requiring any Allowance on Account of ſecond Differences. The proportional Part of the Moon's Longitude, *&c.* for any Hour, may be found very readily by the Help of the Table of proportional Logarithms at the End of the requiſite Tables; for which conſult the Explanation of thoſe Tables.

The Moon's Longitude and Latitude are uſed in computing her Diſtances from the Sun and Stars contained in the Four laſt Pages of the Month, as well as in the Appulſes to Stars pointed out in Page 1, and, jointly with her Parallax and Semidiameter, are neceſſary for computing the Eclipſes of the Sun and Moon, and the Occultations of fixed Stars and Planets by the Moon. They alſo facilitate the Calculation of the Longitude of any Place from an Eclipſe of the Sun, or an Occultation of a Star or Planet by the Moon obſerved: Or, if the Meridian be well known, the Parallax and Semidiameter ſerve to deduce the Moon's true Place in the Heavens from the Obſervation, which compared with that given by the Ephemeris ſhews the Error of the Tables, whatever it be at that Time. The Moon's Semidiameter and Parallax are applied in correcting almoſt all Obſervations of the Moon. The proportional Logarithms of the Moon's Parallax ſerve further to facilitate the Calculations of Parallaxes.

The Moon's right Aſcenſion and Declination are uſeful to compute her Altitude at any Time, particularly at the Obſervation of her Diſtance from the Sun or a Star, ſuppoſing it was neglected to be or could not be obſerved properly; which latter Caſe may ſometimes happen in the Night, though I think but rarely; the utmoſt Accuracy not being required for the Calculations of Refraction and Parallax. See Britiſh Mariner's Guide, Page 57. The Moon's Declination, with her Semidiameter and Parallax, ſerve for finding the Latitude by the Meridian Altitude of her upper or lower Limb obſerved at Sea. See Britiſh Mariner's Guide, Page 93. The Moon's right Aſcenſion and Declination ſerve alſo to compute the Time from her Altitude obſerved at the Obſervation of her Diſtance from a Star; whence the Longitude may be inferred though no Altitude of the Sun or a Star was taken for regulating the Time. , See Britiſh Mariner's Guide, Page 61.

The Diſtances of the Moon from the Sun and fixed Stars, contained in the 8th, 9th, 10th, and 11th Pages of the Month are ſet down to every Three Hours of Apparent Time by the Meridian of Greenwich, and are deſigned to relieve the Mariner from the Neceſſity of a Calculation, which he might think prolix and troubleſome, and to enable him, when compared with the ſame Diſtances obſerved carefully at Sea, to infer his Longitude readily and with little Danger of Miſtake to a Degree of Exactneſs that may be thought ſufficient for moſt nautical Purpoſes. But uſeful and valuable as the Practice of this Method may be at preſent, it is a Remark not unworthy our Notice, that there is Room to hope, by future Improvements of the Lunar Tables, and the Introduction of a more accurate Method of conſtructing Inſtruments, it may be carried to a much higher Degree of Perfection

The Moon's Diſtances are computed both from the Sun and proper Stars, and generally from One Object on each Side of her, to afford the Mariner a greater Number of Opportunities of Obſervation, and a Means of attaining a greater Degree of Exactneſs. The Diſtances from the Sun are computed between 40° and 120° of Diſtance. While the Moon is between the Diſtances of 20° and 40° from the Sun, her Diſtance is computed only from a Star on the contrary Side that the Sun is. When ſhe is between the Diſtances of 40° and 90° from the Sun, her Diſtance is computed both from the Sun and from a Star on the contrary Side to the Sun; when the Moon is above 90° from the Sun her Diſtance is computed from Two Stars, one on each Side of her; though ſtill her Diſtance is computed alſo from the Sun from 90° to 120°. Though the Diſtance of the Moon from the Sun or Star, well obſerved with a good Inſtrument, is ſufficient to determine the Longitude, with the Help of the

Ephemeris, always within a Degree, and generally much nearer, yet it will conduce to ſtill greater Accuracy, if the Obſerver takes the Diſtance of the Moon from Two Stars, or the Sun and a Star, or, when the Moon is between 90° and 120° Diſtance from the Sun, from the Sun and Two Stars, if he can be ſo lucky as to obtain theſe ſeveral Obſervations.

The Longitude being computed from the Obſervations made with each Star reſpectively, the Mean of the Reſults is to be taken as probably approaching neareſt to the true Longitude. In particular the Moon's Diſtance ſhould be taken from Two Stars, or the Sun and a Star on each Side of her, as often as Opportunity permits, ſince the Mean of the Reſults will probably be at leaſt as exact again as either ſeparately, I mean as far as depends on any Imperfection of the Inſtruments, and unavoidable ſmall Errors ariſing in the Uſe of them; Errors of theſe Kinds having a natural Tendency to correct each other; for that ſmall Error which ariſes from the Lunar Tables will affect the Reſult from either Star equally. But the Error of Mr. Mayer's laſt Lunar Tables as corrected by a Series of Dr. Bradley's Obſervations of 9 Years, being theſe here made uſe of, never exceeding 45″, and ſeldom amounting to 15″, the Uncertainty hence ariſing in the Determination of the Longitude can ſcarcely exceed 22 Miles, and generally will not exceed 10 Miles of Longitude.

The Diſtances ſet down in the Ephemeris, afford the Obſerver a ready Means of knowing the Star from which the Moon's Diſtance is to be obſerved; for he has nothing to do but to ſet his Quadrant to the Diſtance computed roughly from the Ephemeris, neglecting the Seconds, at the apparent Time eſtimated nearly by the Meridian of Greenwich; and direct his Sight to the Eaſt or Weſt of the Moon, according as the Diſtance at Greenwich is found in the 8th and 9th, or 10th and 11th Pages of the Month; and having found the Moon upon the little Speculum, let him give a Sweep with the Quadrant to the Right and Left, and he will find the Star he ſeeks for, if above the Horizon and the Air be clear, nearly in a Line perpendicular to the Line of the Moon's Horns or longer Axis, or, which is the ſame Thing, in the Line of the Moon's ſhorter Axis produced. The Star is always one of the brighteſt, ſo that there is little Danger of miſtaking another for it, if the preceding Directions are carefully obſerved. The Time at Greenwich is eſtimated nearly by turning the ſuppoſed Longitude from Greenwich into

into Time, by Table Page 6, 7, and 8, and adding it to or ſubſtracting it from the apparent Time at the Ship, as its Longitude is Weſt or Eaſt of Greenwich. It will be ſufficient if the Diſtance be computed from the Ephemeris within 10′, or 20′, for ſetting the Quadrant. The principal Uſe of the Diſtances of the Moon from the Sun and fixed Stars; namely, in determining the Longitude by Compariſon with the correſponding Diſtances obſerved at Sea, will be ſhewn hereafter in its proper Order, in the Diſſertation explaining the Method of computing the Longitude at Sea by the Help of the Ephemeris.

The Diſtances contained in the Ephemeris were computed ſtrictly to Noon and Midnight, and thence interpolated for every Three Hours, according to the Method ſhewn for computing the Moon's Latitude, Page 160—162: Except that the Correction of ſecond Differences at the Middle of the Interval to be interpolated, was taken $\frac{1}{8}$ of the Mean of the Two ſecond Differences, and at the Firſt and Third Quarter of the Interval was taken $\frac{3}{4}$ of the Correction juſt found at the Middle of the Interval; inſtead of conſulting Table Page 11, which would however have given the ſame Reſult. But, at the firſt 12 Hours, when the Diſtances of the Moon from a Star begin, and the laſt 12 Hours, when the Diſtances end, there being only One ſecond Difference inſtead of Two ſecond Differences on each Side to take a Mean of, this Method fails in theſe Caſes, and therefore the following is to be ſubſtituted in its ſtead, being derived from Sir Iſaac Newton's Solution of the Problem of drawing a Curve through the Extremities of any Number of given Ordinates. Phil. Nat. Princ. Math. Page 486. Edit. ult.

From Four Diſtances at Noon and Midnight computed ſtrictly, to interpolate Three Diſtances at the 3d, 6th, and 9th Hour of the firſt or laſt Interval.

Subſtract each Diſtance from the following, for the firſt Differences, and prefix the Sign —, if the Diſtances decreaſe. Subſtract each firſt Difference thus found from the following One of the ſame Order, for the ſecond Differences: And in like Manner ſubſtract the Firſt 2d Difference from the following for the third Difference; applying the Signs as in algebraic Subſtraction. Denote the firſt or laſt firſt Difference by b, the firſt or laſt ſecond Difference by c; according as the Interpolation to be made is for the firſt or laſt 12 Hours, denote alſo the third Difference by d; and, a being put to ſignify

ſignify the Diſtance at the Beginning of the Interval, the interpolated Diſtances will be as follows:

At 3d Hour of firſt Interval	$a + \frac{1}{4} b - \frac{3}{32} c + \frac{7}{128} d$
At 6th Hour of firſt Interval	$a + \frac{1}{2} b - \frac{1}{8} c + \frac{1}{16} d$
At 9th Hour of firſt Interval	$a + \frac{3}{4} b - \frac{3}{32} c + \frac{5}{128} d$
Or	
At 3d Hour of laſt Interval	$a + \frac{1}{4} b - \frac{3}{32} c - \frac{5}{128} d$
At 6th Hour of laſt Interval	$a + \frac{1}{2} b - \frac{1}{8} c - \frac{1}{16} d$
At 9th Hour of laſt Interval	$a + \frac{3}{4} b - \frac{3}{32} c - \frac{7}{128} d$

In adapting theſe Formulæ to Numbers, great Care muſt be taken about the right Application of the Signs. Thus if *b*, *c* or *d* is Negative, apply the Number expreſſing the Value of that Term of the Formula where it is found with a contrary Sign to that of the Formula.

Let me add in this Place, that if in filling up the firſt and laſt Intervals, a new ſecond Difference has been ſuppoſed in arithmetical Progreſſion with the Two given ones, in order to take a Mean between it and the firſt or laſt ſecond Difference, the Interpolation at the Middle of the Interval or 6th Hour will be had true, the ſame as if the above Formulæ had been uſed: But at the Interpolation of the firſt and third Quarter there will be an Error of $\frac{1}{128}$ third Difference; which will be corrected, by applying $+ \frac{1}{128} d$ or third Difference, to Number found at the firſt Quarter of the Interval, and $- \frac{1}{128} d$ to that found at the third Quarter of the Interval; equally the ſame whether it be the firſt or laſt Interval.

The Configurations of Jupiter's Satellites, Page 12th and laſt, exhibit the apparent Poſitions of the Satellites with reſpect to each other, and to Jupiter at ſuch an Hour of the Evening or Night as they are moſt likely to be obſerved, and ſerve to diſtinguiſh the Satellites from one another. Jupiter is diſtinguiſhed by the Mark ⊙, and the Satellites by Points with Figures annexed, the Figure 1 ſignifying the firſt Satellite, 2 the ſecond Satellite, *&c.* When the Satellite is approaching towards Jupiter, the Figure is put between Jupiter and the Point; and when the Satellite is receding from Jupiter, the Figure is put on the other Side of the Point. The Satellites are in the ſuperior Parts of their Orbits, or furtheſt from the Earth, when they are marked to the right Hand or Weſt of Jupiter approaching him; or to the left Hand or Eaſt of Jupiter receding from him; but are in the inferior Part of their

their Orbits, or neareſt to the Earth, when they are marked to the right Hand or Weſt of Jupiter receding from him, or to the left or Eaſt of Jupiter approaching him. The Cypher o ſometimes annexed to the Figure of the Satellite towards the Margin, ſignifies that it is inviſible on the Face of Jupiter; and the black Mark ●, ſignifies that it is inviſible, being eclipſed in Jupiter's Shadow, or behind Jupiter, and eclipſed by his Body.

THE END.

ASTRONOMICAL PROBLEMS,

BY

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THE Method of finding the Longitude at Sea or Land, by taking Diſtances of the Sun and Moon, or the Moon and a fixed Star, by means of a Hadley's Quadrant, being ſo generally eſteemed and univerſally practiſed; the following *neceſſary* Problems may not be unacceptionable to Aſtronomers and Navigators; being ſolved in the moſt eaſy and expeditious Manner the Nature of ſuch Problems can poſſibly admit of.

PROBLEM I.

The Latitude of a Place, the Sun's Declination and Altitude being given, to find the Horary Angle or Hour from Noon.

From the Natural Sine of the Sun's [*] Meridian Altitude, ſubtract the Natural Sine of the true Altitude of his Center at the Time of the Obſervation; find the Logarithm correſponding to this Number, and add it to the Complement Arithmetical of the Logarithmic Coſine of the Latitude of the Place, and the Complement Arithmetical of the Logarithmic Coſine of the Sun's Declination, the Sum is the Logarithmic Riſing (in Tables publiſhed in the Nautical Almanac for 1771, or in the following Tables, if the Angle is greater than Six Hours) of the Horary Angle required.

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[*] If the Sun's Declination and the Latitude of the Place are of the ſame Name, that is, both North or both South, the Complement of the Latitude to 90 Degrees muſt be added to the Declination to obtain the Meridian Altitude: But if the Declination and Latitude are of different Names, that is, one North and the other South, the Difference of the Complement of Latitude and the Declination is the Meridian Altitude required.—If the Meridian Altitude, ſo found, ſhould exceed 90 Degrees, take its Complement to 180 Degrees, and uſe the Natural Sine of the Remainder; or ſubſtract 90 Degrees from the Meridian Altitude, and uſe the Natural Coſine of the Remainder.

EXAMPLE I.

What is the Hour of the Day in Latitude 16°. 24′ North, when the true Altitude of the Sun's Center is 47°. 24′ towards the Weſt, and his Declination 5°. 48′ South?

	° ′			
Lat.	16.24 N.	— Log. Coſ. Co. Ar.		
Complem.	73.36			
☉'s Declin.	5.48 S.	— Log. Coſ. Co. Ar.		
Merid. Alt.	67.48	—Nat. Sine	92587	
True Alt.	47.24	—Nat. Sine	73609	0.01804
				0.00223
		Diff.	18978 Log.	4.27825
				4.29852 =
		ho. ′ ″		
	Log. Riſing of	2. 27. 2.	the Hour required.	

Remark. The Declination of the Sun made Uſe of in ſolving this and the following Problem, muſt be his Declination at the Time of the Obſervation, and not at Noon or Mid-day.

General Remark. Whenever the Nautical Ephemeris is uſed for this, or any other Aſtronomical Problem, the Time of the Obſervation muſt always be reduced to the Meridian of the Royal Obſervatory at Greenwich, and the Declination, Right Aſcenſion, &c. &c. of the Sun or Moon muſt be taken out of the Ephemeris correſponding to that Time.

EXAMPLE II.

What is the Hour of the Day, apparent Time, in Latitude 52°. 22′ North, when the apparent Altitude of the Sun's lower Limb was 12°. 45′ towards the Eaſt, the Declination being 23°. 28′ North, the Error of Quadrant 4′ additive, and the Eye elevated 20 Feet above the Surface of the Sea?

	°	′
App. Alt. of ☉'s lower Limb=	12.	45
☉'s Semid. add. — — —	0.	16
App. Alt. of ☉'s Center —	13.	1
Sum of Dip. and Refract. ſubtr.	0.	8
	12.	53
Error of Quadr. add	0.	4
True Altitude of ☉'s Center	12.	57

	° ′		
Lat.	52.22	N.—Log. Coſ. Co. Ar.—	
Comp.	37.38		
☉'s Decl.	23.28	N.—Log. Coſ. Co. Ar.	
Merid. Alt.	61. 6	——Nat. S. 87546	
True obſ. Alt.	12.57	——Nat. S. 22410	0.21424
			—0.03749
		65136 Log.	—4.81382
			5.06555=

Log. Riſing of 6h. 37′. 31″ the Horary Angle from the Meridian, whoſe Complement to 12 Hours, as the Obſervation was made in the Morning, is 5h. 22′. 29″ A. M. the apparent Time required.

PROBLEM

[*] PROBLEM II.

To find the Altitude of the Sun at any Time.

To the Logarithmic Coſine of the Latitude of the Place, add the Logarithmic Coſine of the Sun's Declination, and the Logarithm of Riſing correſponding to the Horary Angle or Time from Noon, the Sum, abating 20 from the Index, is "the Logarithm of a Number, which ſubtracted "from the Natural Sine of the Sun's Meridian Altitude, "leaves the Natural Sine of the Altitude at the Time re-"quired.

"Example.

"What is the Sun's Altitude at 11^{h}. 0′ A. M. the Lati-"tude of the Place being 60°. 0′, the Sun's Declination "0°. 0′ and conſequently its Meridian Altitude 30°. 0′?

"Time from Noon 1^{h}. 0′—Log. Riſing 3.53243
"Log. Coſ. of Lat. 60°. 0′ — 9.69897
"Log. Coſ. of Declin. 0. 0 — 10.00000

3.23140 which
"is the Log. of 1704

"This ſubtracted from 50000 the Natural Sine of 30°. 0′

"leaves 48296 the Natural Sine of 28°. 53′
"the Sun's Altitude at 11 Hours.

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[*] As the Second and Third Problems were propoſed and ſolved by Mr. Lyons, and publiſhed in the Nautical Almanac for 1778; I have taken the Liberty to tranſcribe and add them to theſe compleat Set of Aſtronomical Problems neceſſary for determining the Longitude at Sea, marking with inverted Commas what I have borrowed from Mr. Lyons, and adding ſuch Remarks, Emendations, and Examples as I judged neceſſary to elucidate and render them more general, and prevent, as far as poſſible, the young Aſtronomer or Navigator from falling into Errors.

"PROBLEM III.

" To find the Altitude of the Moon or a Star at " any Time.

" To the apparent Time add the Sun's Right Aſcenſion " for that Time, the Sum is the Right Aſcenſion of " the Mid-heaven.

" The Difference between this and the Right Aſcenſion " of the Star is the Horary Angle or Diſtance of Time from " the Star's paſſing the Meridian.

" From the Tables in the Nautical Almanac for 1771, " take out the Riſing for this Time," and then proceed as taught in Problem the Second.

Remark. As Aſtronomers reckon their Time to 24 Hours, and then begin again, or proceed to 1 Hour, 2 Hours, 3 Hours, &c. it will ſometimes be neceſſary to add 24 Hours to the Leſſer Right Aſcenſion (as in the following Example) before the Difference between the Star's Right Aſcenſion and the Right Aſcenſion of the Mid-heaven is taken; ſince the Horary Angle can never exceed 12 Hours.

" EXAMPLE.

" To find the Altitude of α Andromedæ December 1, " 1774, at 10 Hours P. M. at London, Lat. 51°. 31′. N.

" Right Aſcenſion of α Andromedæ	23^{h}. 56′. 48″
" Declination — —	27°. 41′. N.
" Meridian Altitude — —	66. 10.

	h. ′ ″		
" Apparent Time	10. 0. 0		
" Sun's Right Aſcen.	16. 32. 59		
" Right Aſcen. of Mid-heav.	2. 32. 59	Coſ. Lat.	9.79399
" Star's Right Aſcen.	23. 56. 48	Coſ. Decl.	9.94720
" Horary Angle	2. 36. 11	Riſing	4.34900

" The Sum is the Log. of 12308——4.09019
" Subtracted from Nat. Sine 66°. 10′ 91472

" Leaves 79164 Nat. Sine 52°. " 20′ the Alt.

" The Altitude that comes out by this Calculation is the
" true one; and therefore to find the Apparent Altitude, it
" muſt be corrected by adding the Refraction, and if it is
" the Moon, ſubtracting the Parallax correſponding to that
" Altitude."

EXAMPLE II.

To find the Apparent Altitude of the Moon's Center March 2, 1778, at 8^h. 4½′ P. M. apparent Time at Ludlow, whoſe Latitude is 52°. 22′ North, and Longitude, in Time, 0^h. 11′ Weſt of Greenwich.

	h	′	
To	8.	4½	
Add	0.	11	as the Long. is Weſt.
Gives	8.	15½	the Time at Greenwich.

* Right Aſcen. of ☽ at 8^h. 4′ at Ludlow or 8^h. 15′ at Greenwich	2^h. 0′ 20″
Moon's Declination at 8^h. 4′ at Ludlow or 8^h. 15′ at Greenwich	7°. 21′ North.
Comp. of Latitude of 52°. 22′ —	37. 38
Meridian Altitude of Moon —	44. 59

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* The Moon's Right Aſcenſion and Declination were computed by an even Proportion only, which is ſufficiently accurate for theſe Purpoſes.

N. B. The proportional Logarithms, publiſhed at the End of the Tables requiſite for the Nautical Almanac, may be uſed here to conſiderable Advantage, conſidering Hours and Minutes, or Degrees and Minutes, as Minutes and Seconds: Thus, when the Moon varies her Declination 2°. 26′ in 12 Hours, how much will ſhe alter her Declination in 7^h. 19′?

As 12^h. 0′ Proport. Log. Co. Ar.	8.8239
To 7^h. 19′ Proport. Log. —	1.3909
So is 2°. 26′ Proport. Log. —	1.8690
To 1°. 29′ Proport. Log. correſponding to	2.0838

	h. ′ ″	° ′	
App. Time at Ludlow	8. 4. 30		
☉'s R. A. at that Time, or at 8^h. 15′ at Greenwich	22. 55. 9		
Right Aſcen. of Mid-heav.	6. 59. 39	Coſ Lat. 52. 22	9.78560
Moon's Right Aſcen.	2. 0. 20	Coſ.Dec. ☽ 7. 21	9.99642
Horary Angle —	4. 59. 19	Log. Riſing	4.86824
			4.65026

Which is the Log. of 44695
Subtracted from the Nat. Sine of 44° 59′ 70690
Leaves 25995 the
Nat. Sine of 15° 4′ the Moon's true Alt.
Subtract 0. 57 the Parallax in Alt.
Gives 14. 7
Add 0. 3 the Refraction in Alt.
Gives 14. 10 the App. Alt. of ☽'s Center required.

PROBLEM IV.

To find the Hour of the Night by the Altitude of a Star.

Find the Horary Angle by Problem I. and add or ſubtract it to or from the Star's Right Aſcenſion, according as the Star is to the Weſt or Eaſt of the Meridian, and the Sum or Difference is the Right Aſcenſion of the Mid-heaven. Subtract now the Sun's Right Aſcenſion at Noon, at the Meridian of the Place, from the Right Aſcenſion of the Mid-heaven (adding 24 Hours, if neceſſary, to the Right Aſcenſion of the Mid-heaven) the Remainder is the eſtimate Time; which being diminiſhed by the proportional Part of the Sun's Increaſe in Right Aſcenſion, ſince the preceding Noon, will leave the apparent Time required.

EXAMPLE.

What is the Apparent Time at London, December 1, 1774, when α Andromedæ was elevated 52°. 20′ above the Horizon towards the Weſt?

	° ′			
Lat.	51. 31 N.	Log. Coſ. Co. Ar.		
Comp.	38. 29			
*'s Decl.	27. 41 N.	Log. Coſ. Co. Ar.		
*'s Merid. Alt.	66. 10	Nat. S.	91472	
*'s Alt.	52. 20	Nat. S.	79158	0.20601
				0.05279
			12314 Log.	4.09040
				4.34920 =

	h.	′	″	
Log. Riſing of	2.	36.	13	Horary Angle.
Star's Right Aſcen.	23.	56.	48	
The Sum, as the Star is Weſt of Merid. is the R. A. of M. H.	2.	33.	1	
☉'s R. A. at Noon	16.	31.	3	Subt.
Eſtimate Time	10.	1.	58	
☉'s Increaſe in R. A. in 10h. 2′	0.	1.	49	Subt.
Apparent Time required	10.	0.	9	

*PROBLEM V.

To determine the Longitude at Sea or Land from Three Cotemporary Obſervations only; namely, the Apparent Diſtance of the Moon's Limb from the

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* This Problem, though frequently of the greateſt Utility to Navigators, when furniſhed with a Watch whoſe Rate of going cannot be depended upon for

the Star made uſe of in the Nautical Almanack correſponding to the given Day and Year, and the Apparent Altitudes of the Moon and Star, provided the Moon be not leſs than Two Hours diſtant from the Meridian.

Aſſume the Longitude of the Place, and from thence find the Time at Greenwich within an Hour or Two, and take out of the Nautical Almanack, to that Time, the Moon's Semidiameter and Horizontal Parallax. Add or ſubtract the Moon's Semidiameter to or from the apparent Diſtance of the Moon and Star, according as the Diſtance of the Star was taken from the neareſt or furtheſt Limb of the Moon: Find now the true Diſtance of the Moon and Star, by either of the Methods publiſhed in the Nautical Almanack for 1772, or in Tables requiſite for the Nautical Ephemeris, or in the Folio Tables, printed at Cambridge, for this Purpoſe; and from thence find, by Help of the Nautical Almanack for the given Year, the true Time at Greenwich correſponding to the Obſervation; and to that Time compute the Moon's Right Aſcenſion and Declination, as alſo the Sun's Right Aſcenſion; and from Problem I. find the Moon's Horary Angle, to or from which add or ſubtract the

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for ſome Hours, has not been ſolved by any one but the Rev. Dr. Maſkelyne, Aſtronomer Royal: And as his Method is very different from what is here propoſed, the Nautical Almanack being ſubſequent to his Britiſh Mariner's Guide, it is preſumed that the Solution of this Problem, by Help of the Nautical Ephemeris, will prove acceptable to Mariners, eſpecially as we are informed in the above-mentioned Work, Page 62, "that this Method, as it requires only the Three eſſential Obſervations "taken at the ſame Inſtant, ſo it may often be of very great Uſe, and in "many Caſes, it may be full as exact as the general Method which I have "propoſed, as the Altitude of the Moon, eſpecially if not very high, may "be often taken at Sea in the Night, by help of her own Light illuminating the Horizon, to almoſt as great a Degree of Exactneſs, as the Altitude "of the Sun in the Day Time; whereas the Altitudes of Stars, which do "not lie in the ſame Vertical with the Moon, cannot be taken with the "ſame Certainty, the Horizon under them being not enlightened in the "ſame Manner."

Moon's Right Aſcenſion, according as ſhe is Weſt or Eaſt of the Meridian, and the Sum or Remainder is the Right Aſcenſion of the Mid-heaven, from which if the Sun's Right Aſcenſion be ſubtracted (adding 24 Hours to the Right Aſcenſion of the Mid-heaven, if neceſſary) the Remainder will be the apparent Time at the Place of Obſervation, and the Difference between this Time and the Time already found at Greenwich is the Longitude required.

EXAMPLE.

* Being in the Lat. 52°. 22′ N. and Long. by Account, in Time 0^{h}. 11′ Weſt of Greenwich on March 2, 1778, towards Eight o'Clock in the Evening, I obſerved the apparent Diſtance of the Star Aldebaran from the enlightened and fartheſt Limb of the Moon was 37°. 0¼′, and at the ſame Inſtant of Time the apparent Altitude of the Moon's Center was 14°. 10′ towards the Weſt, and the apparent Altitude of the Star was 42°. 26′, required the true Longitude of the Place of Obſervation?

Diſt. of * and ☽'s fartheſt Limb 37°. 0¼′
☽'s Semid. per Ephemeris 0. 16¼ at about 8¼^{h}. P.M.

App. Diſt. of * and ☽'s Center 36. 44 from which, and

the ☽'s apparent Alt. 14°. 10′, and the Star's apparent Alt. 42°. 26′, the true Diſtance of Aldebaran from the Moon's Center (by Mr. Dunthorne's Method, publiſhed in Tables requiſite for the Nautical Almanack, Page 64) is

35°. 58′. 49″

Diſt. of ☽ and * at 6^{h}. 37. 19. 40 } per Ephem. for 1778.
Diſt. of ☽ and * at 9^{h}. 35. 32. 33 }

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* N. B. The true Latitude of Ludlow, the Place where the above Obſervation was made, is 52°. 22′. 30″, and the true Longitude, from a Mean of a great Number of Obſervations of the Eclipſes of the firſt Satellite of Jupiter, is 2°. 46½′, or 0^{h}. 11′. 6″ in Time Weſt of the Royal Obſervatory at Greenwich.

	8 ′ ″		
Diff. or Motion in 3h.	1. 47. 7	proportional Log.	2254
Diff. of Diſt. of ☽ and * at 6h. and at the Time of Obſerv.	1. 20. 51	proportional Log.	3476
	2h. 15. 51	correſponding to	1222
Add	6. 0. 0		
Gives	8. 15. 51	apparent Time at Greenwich at the Time of Obſervation in the unknown Meridian.	

	h. ′	h. ′ ″
† ☽'s Right Aſcen. at	8. 16 —	2. 0. 20
☽'s Declin. at -	8. 16 —	7°. 21′ N.
⊙'s Right Aſcen. at	8. 16 —	22h. 55′ 9″

			° ′
☽'s App. Alt. at Obſervation			14. 10
☽'s Par. in Alt. (correſponding to 59⅔′ Hor. Par. per Ephem. and Alt. 14°. 10′	57′		
☽'s Refraction for Alt. 14° —	3′		
Diff.	54	Add	0. 54
Gives the true Alt. of ☽'s Center			15. 4

	° ′			
Lat.	52. 22 N.	Log. Coſ. Co. Ar.		
Comp.	37. 38			
☽'s Decl.	7. 21 N.	Log. Coſ. Co. Ar.		
Merid. Alt.	44. 59	Nat. S.	70690	
☽'s true Alt.	15. 4	Nat. S.	25994	0.21424
				0.00358
			44696	Log. 4.65027
				4.86809 Log.

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† The Right Aſcenſion and Declination of the Sun and Moon, need only be calculated by an even Proportion, which is ſufficiently accurate for Practice, as the Right Aſcenſion and Declination of the Moon is calculated in the Nautical Ephemeris for Noon and Midnight,

	h. ′ ″	
Riſing of	4. 59. 16=the Hor. Angle.	
Which added to the ☽'s R. A. as ſhe is Weſt of the Merid.	2. 0. 20	
Gives the R. A. of Mid-heaven	6. 59. 36	
☉'s R. A. ſubtract	22. 55. 9	
Gives the true app. Time	8. 4. 27	at Ludlow.
True app. Time	8. 15. 51	at Greenwich.
The Difference	0. 11. 24	is the Long. of

Ludlow Weſt of Greenwich, as the Time at the Place of Obſervation is leſs than the Time at Greenwich.

Remark. The above Example being an actual Obſervation, demonſtrates the Utility of this Problem, the Error in this Caſe being only Three Miles in the Parallel of Lat. 52½ Degrees.

*PROBLEM VI.

To find the Rate of the Going of a Watch at Sea.

Take the Sun's Altitude when he is three or four Hours diſtant from the Meridian, the nearer the Eaſt or Weſt Points the better; and from the Latitude of the Ship and the Sun's Declination at the Time of the Obſervation (allowing for the Difference of Longitude between the Ship and Greenwich) compute the apparent Time, to which apply the Equation of Time from the Nautical Ephemeris, adding or ſubtracting it, as the Ephemeris directs, to or

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* In finding the Longitude at Sea, the Mariner is frequently obliged to truſt to the Goodneſs of his Watch for ſeveral Hours. But as the beſt Watches are ſubject to Irregularities; the ſkilful Navigator ſhould frequently prove the Rate of the Going of his Watch, and make a proportionable Allowance for the Time he is neceſſitated to truſt to it.

from

from the apparent Time; the Sum or Difference is the mean Time of the firſt Obſervation: And the Difference between this Time and that ſhewn by the Watch is the Error of the Watch, or how much it is too faſt or too ſlow. The next Day, or as ſoon as another Opportunity offers, make another Obſervation of the Sun's Altitude, and from thence compute again the mean Time. Take now the Difference of Longitude, in Time, by Account, made by the Ship between the Firſt and Second Obſervations, and add or ſubtract it to or from the mean Time found at the ſecond Obſervation, according as the Ship has ſailed Weſtward or Eaſtward of the firſt Station or Place of Obſervation, and the Sum or Difference is the mean Time at the firſt Station, correſponding to the ſecond Obſervation: Correct now this Time by adding or ſubtracting the Error of the Watch at the firſt Obſervation, according as it was too faſt or too ſlow, and you will have the Time the Watch ought to ſhew if it went accurate: And the Difference between this laſt-mentioned Time, and that ſhewn by the Watch at the ſecond Obſervation will be its true Rate of going between the two Obſervations, and conſequently its Rate of going for any determinate Time will be known, by Proportion, ſuppoſing the Watch to go uniformly.

EXAMPLE.

Being at Sea April 3, 1778, in the Latitude 30°. 15′ North, and Longitude, by Account 60°. 0′ Weſt, I obſerved, in the Afternoon, the true Altitude of the Sun's Center was 10°. 35′, my Watch ſhewing 5^h. 30′ at that Inſtant. Two Days afterwards, being in the Lat. 29°. 12′ North, and Longitude 61°. 30′ Weſt, by Account, I made another Obſervation on the Sun, in the Afternoon, and found his true central Altitude was 8°. 20′ at 5^h. 41′ by the Watch, required the true Rate of the Going of the Watch?

First,

Firſt, To find the Time at the firſt Station or Place of Obſervation.

Long. of firſt Station, by Account, = 60°. 0′ Weſt, in Time — —	4^{h}. 0′
Time per Watch at firſt Obſervation —	5. 30
The Sum, as the Long. is Weſt, is the Time at Greenwich nearly — —	9. 30
Sun's Declin. April 3, 1778, at 9^{h}. 30′ P. M. by the Ephemeris is —	5° 36′ N.
Equation of Time for April 3, 1778, at 9^{h}. 30′ by the Ephemeris is —	3′ 9″ Add.

	° ′		
Lat.	30. 15	N. Log. Coſ. Co. Ar.	
Comp.	59. 45		
☉'s Declin.	5. 36	N. Log. Coſ. Co. Ar.	
Merid. Alt.	65. 21	Nat. S. 90887	0.06357
☉'s Alt.	10. 35	Nat. S. 18366	0.00208
		72521	Log. 4 86046
			4.92611

	h.	′	″	
Log. Riſing of	5.	24.	0	Apparent Time.
Equation of Time	0.	3.	9	Add
Mean Time of 1ſt Obſ.	5.	27.	9	
Time per Watch at 1ſt Obſ.	5.	30.	0	
Watch too faſt	0.	2.	51	=Error of Watch.

Secondly, To find the Time at the ſecond Station, or Place of Obſervation.

	h. ′
Long. of ſecond Station, by Account, 61°. 30′ Weſt, in Time — — —	4. 6
Time per Watch at ſecond Obſervation —	5. 41
Time at Greenwich nearly	9. 47

☉'s Declin. April 5th 1778, at 9^{h}. 47′ P.M. by the Ephemeris is —— } 6° 22′

Equation of Time April 5th 1778, at 9^{h}. 47′ P.M. by the Ephemeris is —— } 2′ 33″ Add.

	° ′			
Lat.	29. 12 N.	Log. Coſ. Co. Ar.		0.05902
Comp.	60. 48			
☉'s Decl.	6. 22 N.	Log. Coſ. Co. Ar.		0.00269
Merid. Alt.	67. 10	Nat. S.	92164	
☉'s Alt.	8. 20	Nat. S.	14493	
			77671	Log. 4.89026
				4.95197

	h. ′		h. ′ ″
		Log. Riſing of	5. 35. 58
		Equa. of Time	0. 2. 33 Add.
1ſt. Long. by Acc.=	4. 0		
2d. Long. by Acc.=	4. 6	Mean Time of 2d Obſ.	5. 38. 31

Difference 0. 6 Add, as the Ship has ſailed Weſtward from the firſt Station, or Place of 1ſt Obſervation } 0. 6. 0

Gives mean Time at the firſt Station 5. 44. 31

But the Watch was too faſt at the firſt Obſ. by 0. 2. 51

The Sum is the Time the Watch ought to ſhew, if it went accurately — } 5. 47 22

But it ſhewed 5. 41. 0

Therefore it had loſt between the 1ſt and 2d Obſervations —— } 0. 6. 22

And conſequently the Watch loſes each Day 0. 3. 11

Remark. The above Proceſs, for finding the Rate of the Going of a Watch at Sea, is intended only to determine its Rate between the two Obſervations pretty nearly; and conſequently its Variation in a few Hours ſufficiently correct for the moſt ſcrupulous Obſerver. Could a Method be contrived to determine, from Time to Time, its daily Variation to a Second or two, the Longitude would then be known by the Watch and the Hour of the Day at the Ship; but this is likely to remain a Deſideratum in Navigation.

[*] PROBLEM VII.

To find the Latitude from the apparent Meridian Altitude of the Moon obſerved at Sea.

Correct the Moon's apparent Altitude by Parallax, Refraction, Dip, &c. with the Moon's daily Variation in paſſing the Meridian of Greenwich, and the Difference of Longitude, in Time, by Account, between Greenwich and the Ship, enter the following Table, and the Number of Minutes correſponding to that daily Variation and Difference of Longitude being added to, or ſubtracted from the Time of the Moon's paſſing the Meridian of Greenwich, given by the Ephemeris, according as the Ship is to the Weſt or Eaſt of Greenwich, will give the Time the Moon paſſes the Meridian of the Ship; to or from which Time the Difference of Longitude of the Ship and Greenwich being added or ſubtracted, as the Ship is Weſt or Eaſt of Greenwich, the Sum or Difference will be the Time at Greenwich that the Moon paſſes the Meridian of the Ship: To this Time find, by an [†] even Proportion, the Moon's Declination, and from thence by the ‡ well-known Rules for determining the Latitude from the Meridian Altitude of the Sun or a Star, and the Declination, the Latitude of the Ship may eaſily be found.

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[*] This Problem was propoſed and ſolved by the Rev. Dr. Maſkelyne, Aſtronomer Royal, in his Britiſh Mariner's Guide, Page 93; but as the Nautical Almanack was not then publiſhed, it is preſumed the following Solution will be found the moſt conciſe of any yet offered to the Publick.

[†] In Practice the Moon's Declination found by an even Proportion need not ever be corrected, by Interpolations, being calculated in the Nautical Almanack for every 12 Hours; and the greateſt poſſible Correction can only be 3′½ even when her Declination is 28°½.

☽'s Daily Variation	Difference of Longitude between the Ship and Greenwich, in Time.												
	12h.	11h.	10h.	9h.	8h.	7h.	6h.	5h.	4h.	3h	2h.	1h.	½h
	′	′	′	′	′	′	′	′	′	′	′	′	′
70	33	30	28	25	22	20	17	14	11	8	6	3	1
65	31	28	26	23	21	18	15	13	10	8	5	3	1
60	29	26	24	22	19	17	14	12	10	7	5	2	1
55	27	24	22	20	18	15	13	11	9	7	4	2	1
50	24	22	20	18	16	14	12	10	8	6	4	2	1
45	22	20	18	16	15	13	11	9	7	5	4	2	1
40	20	18	16	15	13	11	10	8	6	5	3	2	1

EXAMPLE.

Suppoſe that being at Sea April 6th 1778, in Longitude 60°. 0′ Weſt by Account, I obſerved the Meridian Altitude of the Moon's Lower Limb 76°. 15′: That the Altitude of my Eye above the Surface of the Sea was 20 Feet. and the Error of my Quadrant 3′½ ſubtractive; required the Latitude of the Ship?

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‡ Which are,

CASE I. If the Zenith Diſtance and Declination are of the ſame Name, then their Difference is the Latitude required; and is of the ſame Name with the Declination when it is greater than the Zenith Diſtance: But of a contrary Name, when it is leſs than the Zenith Diſtance.

CASE II. If the Zenith Diſtance and Declination are of a contrary Name, then their Sum is the Latitude required; and is always of the ſame Name with the Declination.

	° ′
App. Alt. of ☽'s L. L.	76. 15
☽'s Semid. per Ephem.	0. 15½
App. Alt. of ☽'s Center	76. 30½
Dip. 4′¼ Refract. 0′¼ Sum ſubt.	0. 4½
	76. 26
Error of Quadrant ſubtr.	0. 3½
True App. Alt. of ☽'s Center	76. 22½
Par. of Alt. (Hor. Par. 57′ per Ephem. Alt. 76°½) add	0. 13½
True Alt. of ☽'s Center	76. 36

	h. ′
☽ paſſes Merid. of Greenwich April 6th 1778, at — —	8. 26 per Ephem.
☽ paſſes Merid. of Greenwich April 7th 1778, at — —	9. 16 per Ephem.
Difference or daily Variation	0. 50

	h. ′
☽ paſſes Merid. of Greenwich April 6th 1778, at	8. 26
Minutes per Table correſponding to 4h. 0′ (the Long. of Ship in Time) and 0h. 50′ the daily Variation add, as the Ship is Weſt of Greenwich —	0. 8
Gives the Time the ☽ paſſes the Meridian of Ship	8. 34
Long. of Ship, by Account, Weſt, add	4. 0
Gives the Time at Greenwich the ☽ paſſes the Meridian of Ship — — —	12. 34

☽'s Declin. per Ephem. and even Proportion, at 0h 34′ after Midnight, April 6th —	18°. 5′ N.
☽'s true Alt. 76°. 36′ South, whoſe Complement to 90° gives the Zenith Diſtance —	13°. 24′ S.
Latitude required (per Case II. in Notes)	31°. 29′ N.

1ſt Remark. A great Degree of Accuracy in the Time of the Moon's paſſing the Meridian is not here required, ſince an Error of 4 Minutes can never produce more than an Error of 1 Minute in the Declination, even when ſhe alters her Declination the faſteſt poſſible.

2d Remark. An Error of even 15 Degrees or 1 Hour in the Longitude, by Account, is of little or no Conſequence here, as it can only alter the Time of the Moon's paſſing the Meridian by 3 Minutes; which, by the above Remark will ſcarce ever affect the Declination, and conſequently the Latitude by one Minute.

*PROBLEM VIII.

To find the Sun's Azimuth from the Meridian of any Place.

CASE I. When the Latitude and Declination are of the ſame Name, take the Sum of the Natural Sine of the Sun's Declination, and the Natural Coſine of the Sum of the Latitude and the Sun's Altitude; find the Logarithm correſponding to this Number, and add it to the Complement Arithmetical of the Logarithmic Coſine of the Latitude of the Place, and the Complement Arithmetical of the Logarithmic Coſine of the Sun's true Altitude, the Sum is the Logarithmic Riſing of an Angle in Hours, Minutes, and Seconds, which being turned into Degrees and Minutes, is the Azimuth required.

CASE II. When the Latitude and Declination are of different Names, take the Difference of the Natural Sine of the Sun's Declination and the Natural Coſine of the Sum of the Lati-

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* As this Problem is in conſtant Uſe for finding the Variation of the Compaſs, I have added it to this Collection of Aſtronomical and Nautical Problems, eſpecially as the Solution is more conciſe and eaſy than the common Method, being very nearly the ſame as Prob. I. without perplexing the Navigator with a great Variety of Rules widely different from each other.

Latitude and the Sun's Altitude, find the Logarithm correſponding to this Number, and then proceed as taught in Caſe I.

Remark. If the Sum of the Latitude and Altitude ſhould exceed 90° ſubtract 90° from that Sum, and take the Difference between the Natural Sine of this Remainder and the Natural Sine of the Sun's Declination, find the Logarithm correſponding to this Number, and then proceed as taught in Caſe I.

EXAMPLE I.

In Latitude 16°. 00′ South, the Sun's true Altitude was obſerved in the Forenoon=30°. 22′ when his Declination was 22°. 58′ South, what was his Azimuth at that Time?

	° ′			
Lat.	16. 0 S.	Log. Coſ. Co. Ar.		
☉'s Alt.	30. 22	Log. Coſ. Co. Ar.		
Sum	46. 22	Nat. Coſine	69004	
☉'s Decl.	22. 58 S.	Nat. Sine	39019	0.01716
				0.06408
		Sum	108023	Log. 5.03351
				5.11475 Log.

Riſing of $7^{h}.\ 10'.\ 25''=107^{\circ}.\ 36'$ the Azimuth required from the North (being the Meridian in Southern Latitudes) towards the Eaſt.

EXAMPLE II.

What is the Sun's true Azimuth in the Latitude of 13°. 10′ North, when his true Altitude was 17°. 50′ towards the Eaſt, and his Declination 16°. 59′ South?

	° ′			
Lat.	13. 10 N.	Log. Coſ. Co. Ar.		
☉'s Alt.	17. 50	Log. Coſ. Co. Ar.		
Sum	31. 0	Nat. Coſ.	85717	
☉'s Decl.	16. 59 S.	Nat. Sine	29209	0.01157
				0.02138
		Diff.	56508	Log. 4.75211
				4.78506 Log.

Riſing of 4h. 28′. 5″=67°. 1′ the Azimuth required from the South (being the Meridian in Northern Latitudes) towards the Eaſt.

EXAMPLE III.

Given the Latitude 51°. 32′ North, the Sun's Declination 22°. 47′ North, and his true Altitude 49°. 29′ towards the Weſt, required his Azimuth.

	° ′		
Lat.	51. 32 N.	Log. Coſ. Co. Ar.	
☉'s Alt.	49. 29	Log. Coſ. Co. Ar.	
Sum	101. 1		
Subtr.	90. 0		
Remaind.	11. 1	Nat. Sine 19109	0.20617
☉'s Decl.	22. 47 N.	Nat. Sine 38725	0.18731
		Diff. 19616	Log. 4.29261
			4.68609 Log.

Riſing of 3h. 56′. 7″=59°. 2′ the Azimuth required from the South towards the Weſt.

*PROBLEM IX.

Having the Latitude of a Place, the apparent Time at that Place, and the Obliquity of the Ecliptic, to find the Altitude of the Nonageſimal Degree, and its Longitude.

Firſt, To find the Altitude of the Nonageſimal Degree.

Find the Right Aſcenſion of the Mid-heaven, by adding to the given Time, the Sun's Right Aſcenſion at that Time,

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* I have added this Problem, for the Service of Aſtronomers, to compute Eclipſes of the Sun, or Occultations of the Stars by the Moon; being much ſhorter than any Method I have ſeen publiſhed for this Purpoſe.

allowing for the Difference of Meridians between the Place and Greenwich, and turn it into Degrees and Minutes: Then

If the Right Aſcen. of the Mid-heaven is between	° ° 0— 90	the ſaid Right Aſcen. of the Mid-heaven in Degrees and Minutes.	incr. by ° 90
	90—180 & 180—270		ſubtr. from 270
			ſubtr. from 270
	270—360		leſſened by 270

will give an Arc or Angle, which call A. Then to twice the Logarithmic Sine of Half the Arc A, add the conſtant Logarithm 9.90115 and the Logarithmic Coſine of the reduced Latitude of the Place; find the natural Number correſponding to this Logarithm, and take it from the natural Coſine of the Difference between 66°. 32′ (the Complement of the Obliquity of the Ecliptick) and the reduced Latitude of the Place, the Remainder is the natural Coſine of the Altitude of the Nonageſimal Degree.

1ſt. Remark. The Latitude of the Place muſt always be reduced to the Earth's Center. See a [*] Table for this Purpoſe, in Mayer's Tables, Page lxxv.

2d. Remark. When the Index of the Sum of the four Logarithms is 39, 38, 37, 36, &c. the Number of Places in the correſponding natural Number is 5, 4, 3, 2, &c.

Secondly, To find the Longitude of the Nonageſimal Degree.

To the Logarithmic Sine Co. Ar. of the Altitude of the Nonageſimal Degree, add the Logarithmic Sine of the

---

[*] The following Table is copied from Mayer's Tables, and is that which is referred to.

Lat.	red.	ſubt.	Lat.	red.	ſub.	Lat.	red.	ſub.	Lat.	red.	ſub.
°	′	″	°	′	″	°	′	″	°	′	″
0	0.	0	24	11.	6	48	14.	51	72	8.	57
6	3.	6	30	12.	56	54	14.	12	78	6.	4
12	6.	4	36	14.	12	60	12.	56	84	3.	6
18	8.	57	42	14.	51	66	11.	6	90	0.	0

Arc

Arc A, and the Logarithmic Coſine of the reduced Latitude of the Place; the Sum, abating 10 from the Index, is the Logarithmic Sine of an Arc, which call B; and

When the Right Aſcen. of the Mid-heaven is between	° °		°	
	0— 90	the Arc B. ſubtr. from	90	is
	90—180	the Arc B. added to	90	
	&			
	180—270	the Arc B. ſubt. from	270	
	270—360	the Arc B. added to	270	

the Longitude of the Nonageſimal Degree.

EXAMPLE.

What is the Altitude and Longitude of the Non. Degree at Ludlow, whoſe Lat. is 52°. 23′ North, and Long. 0^{h}. 11′ Weſt of Greenwich, on February 7th 1778, at 10^{h}. 56′. 11″ apparent Time; being the Inſtant of the Immerſion of the Star μ ♊ behind the dark Limb of the Moon?

	h. ′ ″
App. Time at Ludlow	10. 56. 11
☉'s R. A. at that Time (=11^{h}. 7′ at Greenwich)	21. 27. 14
R. A. of Mid-heaven in Time	8. 23. 25
	° ′
In Degrees and Minutes	125. 51½
Which ſubtract from	270. 0
Gives Arc A.	144. 8½
Half Arc A.	72. 4¼

	° ′	
Lat.	52. 23	
Reductions per Tab.	0. 14	ſubtr.
Reduced Lat.	52. 9	
Comp. of 23°. 28′	66. 32	
Difference	14. 23	

Log. Sine of Half Arc A	9.97838 9.97838		
Conſtant Log.	9.90115		
Log. Coſine of 52°. 9′	9.78788		
Sum	39.64579	Nat. Numb. of	44238
		Nat. Coſ. of 14° 23′	96865
Alt. of Non. Deg. 58°. $14'\frac{3}{4}$		Nat. Coſ. corrreſpond. to	52627

Alt. Non. Deg. 58°. $14'\frac{3}{4}$ Log. Sine Co. Ar.	0.07043
Arc A. 144°. $8'\frac{1}{2}$ Log. Sine — —	9.76775
Reduced Lat. 52°. 9′ Log. Coſine —	9.78788
Arc B. $\overset{\circ}{25}.\ \overset{\prime}{0}\frac{1}{2}$ Log. Sine correſponding to	9.62606
Add 90. 0	

Sum 115. $0\frac{1}{2} = \overset{\bullet}{3}.\ \overset{\circ}{25}.\ \overset{\prime}{0}\frac{1}{2}$ the Longitude of the Nonageſimal Degree required.

Remark. In computing the Parallaxes in Longitude and Latitude in ſolar Eclipſes or Occultations of Stars and Planets by the Moon, from the Longitude of the Nonageſimal Degree, and its Altitude found by this Problem, the horizontal equatorial Parallax given in the Nautical Almanac muſt be leſſened, by a Number of Seconds taken out of Page lxxv, Mayer's Tables; or the following Table which is copied from that Work.

Lat.	Red. of Par.			Lat.	Red. of Par.			Lat.	Reduct. of Par.			Lat.	Reduct. of Par.		
	54′	57′	60′		54′	57′	60′		54′	57′	60′		54′	57′	60′
°	″	″	″	°	″	″	″	°	″	″	″	°	″	″	″
0	0,0	0,0	0,0	24	2,3	2,5	2,6	48	7,7	8,2	8,6	72	12,7	13,4	14,1
6	0,2	0,2	0,2	30	3,5	3,7	3,9	54	9,2	9,7	10,2	78	13,4	14,2	14,9
12	0,6	0,7	0,7	36	4,9	5,1	5,4	60	10,5	11,6	11,7	84	13,9	14,6	15,4
18	1,4	1,4	1,5	42	6,3	6,7	7,0	66	11,7	12,4	13,0	90	14,1	14,8	15,6

POSTSCRIPT.

Since the above was written I have ſeen Dr. Pemberton's Solution of this laſt Problem in the Philoſophical Tranſactions Vol. lxi. N° 46; but I believe the foregoing Rule will be found much more convenient in Practice.

ADDITION

TO THE

LOGARITHMIC SOLAR TABLES,

ANNEXED TO THE

NAUTICAL ALMANAC

of 1771.

BY

The Rev^{d}. JOHN EDWARDS, B. A.

M	S	Log.Riſ.	M	S	Log.Riſ.	M	S	Log.Riſ.	M	S	Log.Riſ.
0	0	5.00000	6	0	5.01121	12	0	5.02215	18	0	5.03279
	10	5.00031		10	5.01151		10	5.02245		10	5.03308
	20	5.00063		20	5.01182		20	5.02275		20	5.03337
	30	5.00094		30	5.01213		30	5.02304		30	5.03366
	40	5.00125		40	5.01244		40	5.02334		40	5.03396
	50	5.00156		50	5.01275		50	5.02364		50	5.03425
1	0	5.00188	7	0	5.01305	13	0	5.02394	19	0	5.03454
	10	1.00219		10	5.01336		10	5.02423		10	5.03483
	20	5.00250		20	5.01367		20	5.02453		20	5.03512
	30	5.00282		30	5.01398		30	5.02483		30	5.03542
	40	5.00313		40	5.01428		40	5.02512		40	5.03571
	50	5.00345		50	5.01459		50	5.02542		50	5.03600
2	0	5.00376	8	0	5.01490	14	0	5.02572	20	0	5.03629
	10	5.00407		10	5.01520		10	5.02602		10	5.03658
	20	5.00438		20	5.01550		20	5.02631		20	5.03687
	30	5.00469		30	5.01580		30	5.02661		30	5.03715
	40	5.00501		40	5.01611		40	5.02691		40	5.03744
	50	5.00532		50	5.01641		50	5.02720		50	3.03773
3	0	5.00563	9	0	5.01671	15	0	5.02750	21	0	5.03801
	10	5.00595		10	5.01701		10	5.02780		10	5.03830
	20	5.00626		20	5.01732		20	5.02810		20	5.03859
	30	5.00657		30	5.01762		30	5.02839		30	5.03887
	40	5.00689		40	5.01792		40	5.02869		40	5.03916
	50	5.00720		50	5.01822		50	5.02899		50	5.03945
4	0	5.00751	10	0	5.01853	16	0	5.02928	22	0	5.03974
	10	5.00782		10	5.01883		10	5.02958		10	5.04002
	20	5.00813		20	5.01913		20	5.02987		20	5.04031
	30	5.00844		30	7.01943		30	5.03016		30	5.04060
	40	5.00875		40	5.01973		40	5.03045		40	5.04088
	50	5.00905		50	5.02004		50	5.03074		50	5.04117
5	0	5.00936	11	0	5.02034	17	0	5.03104	23	0	5.04146
	10	5.00967		10	5.02064		10	5.03133		10	5.04174
	20	5.00998		20	5.02094		20	5.03162		20	5.04203
	30	5.01028		30	5.02125		30	5.03191		30	5.04232
	40	5.01059		40	5.02155		40	5.03220		40	5.04261
	50	5.01090		50	5.02185		50	5.03250		50	5.04289

6 HOURS.

M	S	Log.Riſ.	M	S	Log.Riſ.	M	S	Log.Riſ.	M	S	Log.Riſ.
24	0	5.04318	30	0	5.05327	36	0	5.06312	42	0	5.07269
	10	5.04346		10	5.05354		10	5.06339		10	5.07295
	20	5.04374		20	5.05382		20	5.06365		20	5.07322
	30	5.04402		30	5.05410		30	5.06392		30	5.07348
	40	5.04430		40	5.05437		40	5.06419		40	5.07374
	50	5.04459		50	5.05465		50	5.06445		50	5.07400
25	0	5.04487	31	0	5.05493	37	0	5.06472	43	0	5.07427
	10	5.04515		10	5.05520		10	5.06499		10	5.07453
	20	5.04543		20	5.05548		20	5.06526		20	5.07479
	30	5.04571		30	5.05576		30	5.06553		30	5.07505
	40	5.04600		40	5.05604		40	5.06579		40	5.07532
	50	5.04628		50	5.05631		50	5.06606		50	5.07558
26	0	5.04656	32	0	5.05659	38	0	5.06633	44	0	5.07584
	10	5.04684		10	5.05686		10	5.06660		10	5.07610
	20	5.04712		20	5.05713		20	5.06686		20	5.07636
	30	5.04740		30	5.05740		30	5.06713		30	5.07662
	40	5.04769		40	5.05768		40	5.06740		40	5.07687
	50	5.04797		50	5.05795		50	5.06766		50	5.07713
27	0	5.04825	33	0	5.05822	39	0	5.06793	45	0	5.07739
	10	5.04853		10	5.05849		10	5.06820		10	5.07765
	20	5.04881		20	5.05876		20	5.06847		20	5.07791
	30	5.04910		30	5.05904		30	5.06873		30	5.07816
	40	5.04938		40	5.05931		40	5.06900		40	5.07842
	50	5.04966		50	5.05958		50	5.06927		50	5.07868
28	0	5.04994	34	0	5.05985	40	0	5.06954	46	0	5.07894
	10	5.05022		10	5.06013		10	5.06980		10	5.07920
	20	5.05050		20	5.06040		20	5.07006		20	5.07945
	30	5.05077		30	5.06067		30	5.07033		30	5.07971
	40	5.05105		40	5.06094		40	5.07059		40	5.07997
	50	5.05133		50	5.06122		50	5.07085		50	5.08023
29	0	5.05160	35	0	3.06149	41	0	5.07111	47	0	5.08049
	10	5.05188		10	5.06176		10	5.07138		10	5.08074
	20	5.05216		20	5.06203		20	5.07164		20	5.08100
	30	5.05243		30	5.06230		30	5.07190		30	5.08126
	40	5.05271		40	5.06258		40	5.07217		40	5.08152
	50	5.05299		50	5.06285		50	5.07243		50	5.08178

6 HOURS. 7 HOURS.

M	S	Log.Riſ.	M	S	Log.Riſ.	M	S	Log.Riſ.	M	S	Log.Riſ.
48	0	5.08203	54	0	5.09111	0	0	5.09996	6	0	5.10856
	10	5.08229		10	5.09136		10	5.10020		10	5.10879
	20	5.08254		20	5.09160		20	5.10044		20	5.10903
	30	5.08280		30	5.09185		30	5.10068		30	5.10926
	40	5.08305		40	5.09210		40	5.10092		40	5.10950
	50	5.08330		50	5.09235		50	5.10116		50	5.10974
49	0	5.08356	55	0	5.09260	1	0	5.10140	7	0	5.10997
	10	5.08381		10	5.09285		10	5.10164		10	5.11021
	20	5.08406		20	5.09310		20	5.10188		20	5.11044
	30	5.08432		30	5.09335		30	5.10212		30	5.11068
	40	5.08457		40	5.09360		40	5.10236		40	5.11092
	50	5.08482		50	5.09385		50	5.10260		50	5.11115
50	0	5.08508	56	0	5.09409	2	0	5.10284	8	0	5.11139
	10	5.08533		10	5.09434		10	5.10308		10	5.11162
	20	5.08558		20	5.09458		20	5.10332		20	5.11185
	30	5.08584		30	5.09483		30	5.10356		30	5.11208
	40	5.08609		40	5.09507		40	5.10380		40	5.11231
	50	5.08634		50	5.09532		50	5.10404		50	5.11255
51	0	5.08660	57	0	5.09556	3	0	5.10429	9	0	5.11278
	10	5.08685		10	5.09581		10	5.10453		10	5.11301
	20	5.08710		20	5.09605		20	5.10477		20	5.11324
	30	5.08736		30	5.09629		30	5.10501		30	5.11347
	40	5.08761		40	5.09654		40	5.10525		40	5.11370
	50	5.08787		50	5.09678		50	5.10549		50	5.11393
52	0	5.08812	58	0	5.09703	4	0	5.10573	10	0	5.11417
	10	5.08837		10	5.09727		10	5.10596		10	5.11440
	20	5.08862		20	5.09752		20	5.10620		20	5.11463
	30	5.08887		30	5.09776		30	5.10643		30	5.11486
	40	5.08911		40	5.09801		40	5.10667		40	5.11509
	50	5.08936		50	5.09825		50	5.10691		50	5.11532
53	0	5.08961	59	0	5.09850	5	0	5.10714	11	0	5.11556
	10	5.08986		10	5.09874		10	5.10738		10	5.11579
	20	5.09011		20	5.09899		20	5.10761		20	5.11602
	30	5.09036		30	5.09923		30	5.10785		30	5.11625
	40	5.09061		40	5.09947		40	5.10809		40	5.11648
	50	5.09086		50	5.09972		50	5.10832		50	5.11671

M	S	Log.Riſ.	M	S	Log.Riſ.	M	S	Log.Riſ.	M	S	Log.Riſ
12	0	5. 11694	18	0	5. 12508	24	0	5. 13302	30	0	5. 14071
	10	5. 11717		10	5. 12530		10	5. 13323		10	5. 14092
	20	5. 11740		20	5. 12553		20	5. 13345		20	5. 14113
	30	5. 11763		30	5. 12575		30	5. 13366		30	5. 14134
	40	5. 11785		40	5. 12597		40	5. 13388		40	5. 14155
	50	5. 11808		50	5. 12619		50	5. 13409		50	5. 14176
13	0	5. 11831	19	0	5. 12642	25	0	5. 13431	31	0	5. 14198
	10	5. 11854		10	5. 12664		10	5. 13452		10	5. 14219
	20	5. 11876		20	5. 12686		20	5. 13474		20	5. 14240
	30	5. 11899		30	5. 12709		30	5. 13495		30	5. 14261
	40	5. 11922		40	5. 12731		40	5. 13517		40	5. 14282
	50	5. 11945		50	5. 12753		50	5. 13538		50	5. 14303
14	0	5. 11967	20	0	5. 12776	26	0	5. 13560	32	0	5. 14324
	10	5. 11990		10	5. 12798		10	5. 13581		10	5. 14345
	20	5. 12013		20	5. 12820		20	5. 13603		20	5. 14366
	30	5. 12036		30	5. 12841		30	5. 13624		30	5. 14386
	40	5. 12058		40	5. 12863		40	5. 13646		40	5. 14407
	50	5. 12080		50	5. 12885		50	5. 13667		50	5. 14428
15	0	5. 12104	21	0	5. 12907	27	0	5. 13689	33	0	5. 14449
	10	5. 12126		10	5. 12929		10	5. 13710		10	5. 14469
	20	5. 12149		20	5. 12951		20	5. 13732		20	5. 14490
	30	5. 12172		30	5. 12973		30	5. 13753		30	5. 14511
	40	5. 12195		40	5. 12995		40	5. 13775		40	5. 14531
	50	5. 12217		50	5. 13017		50	5. 13796		50	5. 14552
16	0	5. 12240	22	0	5. 13039	28	0	5. 13818	34	0	5. 14573
	10	5. 12263		10	5. 13061		10	5. 13839		10	5. 14593
	20	5. 12285		20	5. 13083		20	5. 13860		20	5. 14614
	30	5. 12307		30	5. 13104		30	5. 13881		30	5. 14635
	40	5. 12329		40	5. 13126		40	5. 13902		40	5. 14656
	50	5. 12352		50	5. 13148		50	5. 13923		50	5. 14676
17	0	5. 12374	23	0	5. 13170	29	0	5. 13944	35	0	5. 14697
	10	5. 12396		10	5. 13192		10	5. 13966		10	5. 14718
	20	5. 12419		20	5. 13214		20	5. 13987		20	5. 14738
	30	5. 12441		30	5. 13236		30	5. 14008		30	5. 14759
	40	5. 12463		40	5. 13258		40	5. 14029		40	5. 14780
	50	5. 12486		50	5. 13280		50	5. 14050		50	5. 14800

M	S	Log.Riſ.	M	S	Log.Riſ.	M	S	Log.Riſ.	M	S	Log.Riſ.
36	0	5. 14821	42	0	5. 15548	48	0	5. 16256	54	0	5. 16942
	10	5. 14842		10	5. 15568		10	5. 16275		10	5. 16960
	20	5. 14862		20	5. 15588		20	5. 16295		20	5. 16979
	30	5. 14882		30	5. 15608		30	5. 16314		30	5. 16998
	40	5. 14902		40	5. 15628		40	5. 16333		40	5. 17017
	50	5. 14923		50	5. 15648		50	5. 16352		50	5. 17036
37	0	5. 14943	43	0	5. 15667	49	0	5. 16371	55	0	5. 17054
	10	5. 14963		10	5. 15687		10	5. 16390		10	5. 17073
	20	5. 14984		20	5. 15707		20	5. 16410		20	5. 17092
	30	5. 15004		30	5. 15727		30	5. 16429		30	5. 17111
	40	5. 15024		40	5. 15747		40	5. 16448		40	5. 17129
	50	5. 15045		50	5. 15767		50	5. 16467		50	5. 17148
38	0	5. 15065	44	0	5. 15787	50	0	5. 16486	56	0	5. 17167
	10	5. 15085		10	5. 15807		10	5. 16505		10	5. 17185
	20	5. 15106		20	5. 15826		20	5. 16525		20	5. 17204
	30	5. 15126		30	5. 15846		30	5. 16544		30	5. 17222
	40	5. 15146		40	5. 15865		40	5. 16563		40	5. 17241
	50	5. 15166		50	5. 15885		50	5. 16582		50	5. 17259
39	0	5. 15187	45	0	5. 15904	51	0	5. 16601	57	0	5. 17277
	10	5. 15207		10	5. 15924		10	5. 16620		10	5. 17296
	20	5. 15227		20	5. 15943		20	5. 16640		20	5. 17314
	30	5. 15248		30	5. 15963		30	5. 16659		30	5. 17333
	40	5. 15268		40	5. 15983		40	5. 16678		40	5. 17351
	50	5. 15288		50	5. 16002		50	5. 16697		50	5. 17369
40	0	5. 15309	46	0	5. 16022	52	0	5. 16716	58	0	5. 17388
	10	5. 15329		10	5. 16041		10	5. 16735		10	5. 17406
	20	5. 15349		20	5. 16061		20	5. 16754		20	5. 17425
	30	5. 15369		30	5. 16080		30	5. 16773		30	5. 17443
	40	4. 15388		40	5. 16100		40	5. 16791		40	5. 17462
	50	5. 15408		50	5. 16119		50	5. 16810		50	5. 17480
41	0	5. 15428	47	0	5. 16139	53	0	5. 16829	59	0	5. 17498
	10	5. 15448		10	5. 16158		10	5. 16848		10	5. 17517
	20	5. 15468		20	5. 16178		20	5. 16866		20	5. 17535
	30	5. 15488		30	5. 16197		30	5. 16885		30	5. 17554
	40	5. 15508		40	5. 16217		40	5. 16904		40	5. 17572
	50	5. 15528		50	5. 16237		50	5. 16923		50	5. 17590

8 HOURS.

M	S	Log. Rif.	M	S	Log. Rif.	M	S	Log. Rif.	M	S	Log. Rif.
0	0	5. 17609	6	0	5. 18255	12	0	5. 18883	18	0	5. 19489
	10	5. 17627		10	5. 18272		10	5. 18900		10	5. 19506
	20	5. 17645		20	5. 18290		20	5. 18917		20	5. 19523
	30	5. 17663		30	5. 18308		30	5. 18934		30	5. 19539
	40	5. 17681		40	5. 18325		40	5. 18951		40	5. 19556
	50	5. 17699		50	5. 18343		50	5. 18968		50	5. 19572
1	0	5. 17717	7	0	5. 18361	13	0	5. 18985	19	0	5. 19589
	10	5. 17735		10	5. 18378		10	5. 19002		10	5. 19606
	20	5. 17753		20	5. 18396		20	5. 19019		20	5. 19622
	30	5. 17772		30	5. 18414		30	5. 19035		30	5. 19639
	40	5. 17790		40	5. 18431		40	5. 19052		40	5. 19656
	50	5. 17808		50	5. 18449		50	5. 19069		50	5. 19672
2	0	5. 17826	8	0	5. 18467	14	0	5. 19086	20	0	5. 19689
	10	5. 17844		10	5. 18484		10	5. 19103		10	5. 19705
	20	5. 17862		20	5. 18501		20	5. 19120		20	5. 19721
	30	5. 17880		30	5. 18519		30	5. 19137		30	5. 19738
	40	5. 17898		40	5. 18536		40	5. 19154		40	5. 19754
	50	5. 17916		50	5. 18553		50	5. 19171		50	5. 19770
3	0	5. 17934	9	0	5. 18571	15	0	5. 19188	21	0	5. 19786
	10	5. 17952		10	5. 18588		10	5. 19205		10	5. 19803
	20	5. 17970		20	5. 18605		20	5. 19222		20	5. 19819
	30	5. 17988		30	5. 18623		30	5. 19239		30	5. 19835
	40	5. 18006		40	5. 18640		40	5. 19256		40	5. 19851
	50	5. 18024		50	5. 18657		50	5. 19273		50	5. 19868
4	0	5. 18042	10	0	5. 18675	16	0	5. 19290	22	0	5. 19884
	10	5. 18060		10	5. 18692		10	5. 19307		10	5. 19900
	20	5. 18078		20	5. 18709		20	5. 19323		20	5. 19917
	30	5. 18095		30	5. 18727		30	5. 19340		30	5. 19933
	40	5. 18113		40	5. 18744		40	5. 19356		40	5. 19949
	50	5. 18131		50	5. 18761		50	5. 19373		50	5. 19965
5	0	5. 18148	11	0	5. 18779	17	0	5. 19390	23	0	5. 19982
	10	5. 18166		10	5. 18796		10	5. 19406		10	5. 19998
	20	5. 18184		20	5. 18813		20	5. 19423		20	5. 20014
	30	5. 18202		30	5. 18831		30	5. 194 0		30	5. 20030
	40	5. 18219		40	5. 18848		40	5. 19466		40	5. 20047
	50	5. 18237		50	5. 18865		50	5. 19483		50	5. 20063

M	S	Log. Riſ.	M	S	Log. Riſ.	M	S	Log. Riſ.	M	S	Log. Riſ.
24	0	5. 20079	30	0	5. 20648	36	0	5. 21201	42	0	5. 21733
	10	5. 20095		10	5. 20664		10	5. 21215		10	5. 21747
	20	5. 20111		20	5. 20679		20	5. 21230		20	5. 21762
	30	5. 20127		30	5. 20695		30	5. 21245		30	5. 21777
	40	5. 20143		40	5. 20710		40	5. 21260		40	5. 21791
	50	5. 20159		50	5. 20726		50	5. 21275		50	5. 21806
25	0	5. 20175	31	0	5. 20742	37	0	5. 21290	43	0	5. 21820
	10	5. 20191		10	5. 20757		10	5. 21305		10	5. 21835
	20	5. 20206		20	5. 20773		20	5. 21320		20	5. 21849
	30	5. 20222		30	5. 20788		30	5. 21335		30	5. 21864
	40	5. 20238		40	5. 20804		40	5. 21350		40	5. 21878
	50	5. 20254		50	5. 20819		50	5. 21364		50	5. 21893
26	0	5. 20270	32	0	5. 20835	38	0	5. 21379	44	0	5. 21908
	10	5. 20286		10	5. 20850		10	5. 21394		10	5. 21922
	20	5. 20302		20	5. 20865		20	5. 21409		20	5. 21936
	30	5. 20318		30	5. 20881		30	5. 21424		30	5. 21950
	40	5. 20334		40	5. 20896		40	5. 21439		40	5. 21964
	50	5. 20350		50	5. 20911		50	5. 21454		50	5. 21979
27	0	5. 20366	33	0	5. 20926	39	0	5. 21469	45	0	5. 21993
	10	5. 20382		10	5. 20943		10	5. 21484		10	5. 22007
	20	5. 20398		20	5. 20957		20	5. 21499		20	5. 22021
	30	5. 20413		30	5. 20972		30	5. 21513		30	5. 22036
	40	5. 20429		40	5. 20987		40	5. 21528		40	5. 22050
	50	5. 20445		50	5. 21002		50	5. 21543		50	5. 22064
28	0	5. 20461	34	0	5. 21018	40	0	5. 21558	46	0	5. 22078
	10	5. 20477		10	5. 21033		10	5. 21573		10	5. 22092
	20	5. 20492		20	5. 21048		20	5. 21587		20	5. 22107
	30	5. 20508		30	5. 21063		30	5. 21602		30	5. 22121
	40	5. 20523		40	5. 21079		40	5. 21616		40	5. 22135
	50	5. 20539		50	5. 21094		50	5. 21631		50	5. 22149
29	0	5. 20555	35	0	5. 21109	41	0	5. 21645	47	0	5. 22164
	10	5. 20570		10	5. 21124		10	5. 21660		10	5. 22178
	20	5. 20586		20	5. 21140		20	5. 21675		20	5. 22192
	30	5. 20601		30	5. 21155		30	5. 21689		30	5. 22206
	40	5. 20617		40	5. 21170		40	5. 21704		40	5. 22221
	50	5. 20633		50	5. 21185		50	5. 21718		50	5. 22235

M	S	Log. Riſ.	M	S	Log. Riſ.
48	0	5. 22249	54	0	5. 22745
	10	5. 22263		10	5. 22759
	20	5. 22277		20	5. 22773
	30	5. 22291		30	5. 22786
	40	5. 22305		40	5. 22800
	50	5. 22318		50	5. 22813
49	0	5. 22332	55	0	5. 22827
	10	5. 22346		10	5. 22840
	20	5. 22360		20	5. 22854
	30	5. 22374		30	5. 22868
	40	5. 22388		40	5. 22881
	50	5. 22402		50	5. 22895
50	0	5. 22416	56	0	5. 22908
	10	5. 22430		10	5. 22921
	20	5. 22444		20	5. 22935
	30	5. 22457		30	5. 22948
	40	5. 22471		40	5. 22961
	50	5. 22485		50	5. 22974
51	0	5. 22499	57	0	5. 22988
	10	5. 22513		10	5. 23001
	20	5. 22527		20	5. 23014
	30	5. 22541		30	5. 23027
	40	5. 22555		40	5. 23040
	50	5. 22569		50	5. 23054
52	0	5. 22583	58	0	5. 23067
	10	5. 22596		10	5. 23080
	20	5. 22610		20	5. 23093
	30	5. 22623		30	5. 23107
	40	5. 22637		40	5. 23120
	50	5. 22650		50	5. 23133
53	0	5. 22664	59	0	5. 23146
	10	5. 22678		10	5. 23160
	20	5. 22691		20	5. 23173
	30	5. 22705		30	5. 23186
	40	5. 22718		40	5. 23199
	50	5. 22732		50	5. 23213
			60	0	5. 23226

The foregoing Tables are a Continuation of thoſe which were publiſhed in the Nautical Almanac or Astronomical Ephemeris for 1771, for determining the Latitude, from Two Altitudes of the Sun, and the Interval of Time between the Two Obſervations; now rendered more extenſive for the Solution of the preceding Aſtronomical Problems, and carried to Nine Hours from the Meridian. By *J. E.*

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N. B. To the NAUTICAL ALMANAC of 1769 are annexed Inſtructions relative to the Obſervation of the Tranſit of Venus over the Sun's Diſk on JUNE 3d, 1769, by the Aſtronomer Royal: And to the NAUTICAL ALMANAC of 1771 are added Tables for finding the Latitude from Two obſerved Altitudes of the Sun, with the Interval of Time, meaſured by a Watch, by Capt. *John Campbell*, F.R.S. and new Tables for computing the Eclipſes of Jupiter's Third Satellite, by Mr. *Wargentin*, F. R. S. And to the NAUTICAL ALMANAC of 1772 are annexed Two Methods for clearing the apparent Diſtance of the Moon from the Sun or a fixed Star of the Effect of Refraction and Parallax, by the Aſtronomer Royal and Mr. *George Witchell*, F.R.S. and the Solution of a Problem in MERCATOR's NAVIGATION, by the late Mr. *Lyons*: And to the NAUTICAL ALMANAC of 1773 is added, A new Table of Equations to equal Altitudes, by Mr. *William Wales*, F.R.S. alſo, A Catalogue of the Places of 387 Fix'd Stars, in Right Aſcenſion, Declination, Longitude, and Latitude, adapted to the Year 1760, with their Magnitudes and annual Variations in Right Aſcenſion and Declination, calculated from the late Dr. *Bradley*'s Obſervations: And to the NAUTICAL ALMANAC of 1774 are added, The Reſult of a Series of 10 Years Lunar Obſervations of Dr. *Bradley*, compared with a Set of manuſcript Tables; Elements of Lunar Tables and Remarks on the Hadley's Quadrant, by the Aſtronomer Royal; a Problem for finding the Error in the Poſition of a Tranſit Teleſcope, and Two Examples of the Calculation of the Longitude from a Lunar Obſervation, *&c.* by the late Mr. *Lyons*: And to the NAUTICAL ALMANAC of 1778 are added, Right Aſcenſions and Zenith Diſtances of the Moon deduced from Dr. *Bradley*'s Obſervations; and Aſtronomical Problems by the late Mr. *Lyons*: And to the NAUTICAL ALMANAC of 1779 are added, New Tables for computing the Eclipſes of Jupiter's Second Satellite, by Mr. *Wargentin*, F.R.S. And to the NAUTICAL ALMANAC of 1781 are added, Aſtronomical Problems. By the Rev'd *John Edwards*, B. A.

⁂ Where may be had, ASTRONOMICAL OBSERVATIONS made at the ROYAL OBSERVATORY at *Greenwich*, from 1765 to 1774, by NEVIL MASKELYNE, Aſtronomer Royal; with TABLES for Reducing and Calculating ASTRONOMICAL OBSERVATIONS, by the ſame. Publiſhed by the Preſident and Council of the ROYAL SOCIETY, in Obedience to his MAJESTY's Command; in One Volume Folio. Pr. 25s. in Sheets.